For Official use only

MINISTRY OF IRRIGATION AND POWER

REPORT

OF

THE KRISHNA GODAVARI COMMISSION

Annexure XIV

Particulars of Irrigation and Hydro-electric schemes, under construction

GODAVARI RIVER SYSTEM

July 1962

Printed at Zodiac Press, Delhi-6, India.

TABLE OF CONTENTS

		Page
Foreword		(i)
Statement showing proposed installed power, annual irrigation and annual diversion		(ii)
Section 1.	Introduction	1
Section 2.	General form for recording particulars of major and medium projects	3
Section 3.	Particulars of major and medium projects	9
Table I	Abstract of major and medium schemes	100
Table II	Particulars of minor schemes	102
Table III	Particulars of small tanks and diversions	106
Table IV	Abstract of minor schemes, small tanks and diversions	108
Table V	Crop pattern and duty, district-wise	110

FOREWORD

The data presented in this Annexure relate to irrigation and hydro-electric schemes on the Godavari river system approved for execution in I, II and III Plans and are based on the information obtained from the State Governments of Andhra Pradesh, Madhya Pradesh, Maharashtra, Mysore and Orissa supplemented, here and there, by information collected from project reports and official correspondence between the State Governments and the Planning Commission or the Ministry of Irrigation and Power.

On some of the schemes there have been changes and improvements since original approval, generally of a minor character. These changes and improvements have also been described in this Annexure.

सत्यमेव जयते

Statement showing proposed installed power, annual irrigation and annual diversion

Name of State/ Category of scheme	*Number of schemes*	*Proposed installed power k.W.*	*C.C.A. or Ayacut (acres)*	*Proposed annual irrigation (acres)*	*Proposed annual diversion (T.M.C.)*
1	2	3	4	5	6
ANDHRA PRADESH			*Ayacut*		
Major and medium schemes	3	120,000	22,400	24,500	4.1
Minor schemes	6	—	15,050	18,050	3.1
Small tanks and diversions	11	—	347	347	
Total	**20**	**120,000**	**37,797**	**42,897**	**7.2**
MADHYA PRADESH			*C.C.A.*		
Major and medium schemes	2	—	25,600	20,800	1.6
Minor schemes	4	—	2,315	1,633	0.7
Small tanks and diversions	31	—	6,179	4,937	
Total	**37**	—	**34,094**	**27,370**	**2.3**
MAHARASHTRA			*C.C.A.*		
Major and medium schemes	16	15,000	747,900	545,600	74.8
Minor schemes	30	—	89,553	49,075	2.6
Small tanks and diversions	50	—	7,765	6,074	
Total	**96**	**15,000**	**845,218**	**600,749**	**77.4**
MYSORE					
Major and medium schemes	Nil				
Minor schemes	,,				
Small tanks and diversions	,,				
Total	**Nil**				
ORISSA			*Ayacut*		
Major and medium schemes	1	—	13,800	18,600	1.3
Minor schemes	24	—	24,650	29,580	5.0
Small tanks and diversions	31	—	6,070	8,364	
Total	**56**	—	**44,520**	**56,544**	**6.3**
Total of major and medium schemes	22	135,000	809,700	609,500	81.8
Total of minor schemes	64		131,568	98,338	11.4
Total of small tanks and diversions	123	—	20,361	19,722	
Grand Total	**209**	**135,000**	**961,629**	**727,560**	**93.2**

INTRODUCTION

1.1 After a preliminary study of the nature and extent of irrigation developments, existing and proposed, in the Krishna and Godavari basins and after general discussions with the representatives of the State Governments concerned, the Commission decided to classify all schemes and projects into the following four groups :

(i) Major schemes to include all power projects and such other schemes as would each irrigate 50,000 acres or more annually ;

(ii) Medium schemes — each intended to irrigate less than 50,000 acres annually but having an Ayacut or C.C.A. of not less than 5,000 acres ;

(iii) Minor schemes — each having an Ayacut or C.C.A. of less than 5,000 acres but not less than 500 acres ; and

(iv) Small tanks and diversions — each having an Ayacut or C. C. A. of less than 500 acres.

1.2 A form was drawn to show in detail such particulars of schemes and projects as were relevant to the Commission's work and the State Governments were requested to furnish the requisite data for each major and medium schemes approved for execution in I, II and III Plans. This form with explanatory note, is shown in Section 2. It was, however, found that the information sought by the Commission was not readily available with the State Governments ; each State, therefore set out to collect as much information as could be compiled in the time available.

Particulars of each major and medium projects, as obtained from the State Governments, are given in Section 3. These were shown in draft form first to the representatives of the State Governments concerned, for varification. After appropriate modifications had been made, the revised drafts were discussed in a joint meeting at which the Commission had the benefit of comments made and views expressed by the representatives of other States. This led to some further changes, which have all been incorporated in Section 3.

1.3 The significance of the index numbers, as given to each project in Section 3, is the same as explained in the Commission's Report.

1.4 Important particulars of all major and medium schemes arranged State-wise are given in Table I, including the proposed annual irrigation, proposed annual diversion and also the proposed installed power capacity by each scheme.

1.5 Since each minor scheme diverts but a small quantity of water, since the number of such schemes is relatively large and since most of the particulars specified for the major and medium projects were not available for the minor schemes, the Commission decided to request the State Governments to furnish only a few important facts regarding each minor scheme. These have been presented in Table II to the extent these could be made available by the State Governments.

1.6 As regards small tanks and diversions, even the particulars called for the minor schemes were not available for individual small tanks and diversions. It was, therefore, decided to collect some particulars regarding these small tanks and diversions, not by individual works, but collectively for all the small tanks and diversions in each district. The information obtained is shown in Table III.

1.7 An abstract of all information available regarding minor schemes and small tanks and diversions is shown in Table IV. This table gives the total number of schemes of this kind, district-wise, the areas proposed to be irrigated and the proposed annual diversion.

No records are available of the quantum of river supplies to be diverted by minor schemes or by small tanks and diversions. In order to get some idea of this quantum, the information contained in Table V was collected from each State Government and was utilised in working out the annual diversions shown in Table IV.

1.8 The total number of schemes in each State, the total area proposed to be irrigated and the total river supply proposed to be diverted and also the total installed power are shown in a statement in the beginning of the Annexure.

Section 2

General form
for
recording particulars of schemes
approved for execution in
I, II and III Plans
with
explanatory notes

सत्यमेव जयते

Name of scheme or system

Index Number
indicating serial number,
category of project, sub-basin
and State or States

1. **Name of State**

State or States benefitted by the scheme; if the scheme was in different State prior to re-organisation of States, also the name of that State

2. **Scope of the scheme or system**

Irrigation, hydro-electric or multi-purpose; if multipurpose, all purposes are stated; whether based on flow or flow-cum-storage;

For irrigation schemes, acreage of C.C.A. or Ayacut is given;

For hydro-electric schemes, installed power in kW. is stated

3. **Source of supply**

Name of channel with name of place where diversion works are located, tributary and the river

Illustration : Sina at Sholapur/Bhima/**Krishna**

Upstream uses if any, existing and proposed

4. **Description of the reservoir or tank**

Live storage; dead storage; carry-over; annual reservoir losses; filling period; depletion period; catchment area; area submerged; full reservoir level; minimum pond level or dead storage level

If no canal takes off from the reservoir or tank :

type, length and height of dam; length and capacity of spillway; and number and capacity of outlets.

5. **Description of the headworks**

If a canal takes off above the dam:

type, length and height of dam, length and capacity of spillway, number and capacity of outlets including particulars of head regulator of the canal

If the head works consist of a weir, anicut or barrage :

length of weir, anicut or barrage with discharging capacity; particulars of under-sluices and of head regulator of canal; minimum pond level, catchment area upstream of headworks

6. **Description of the canal(s)**

Name of canal (contour or ridge); whether taking off on right or left; length of main canal (and of branches); one seasonal, two seasonal or perennial; lined or unlined; authorised capacity at head

7. **(a) Nature of investigations carried out up-to-date**

(b) Actual or probable date of beginning of construction

8. Probable date of beginning of operation

IRRIGATION ASPECTS

9. Gross commanded area, culturable commanded area and Ayacut, district-wise

(i) In general; separate tables are prepared for each major canal;
(ii) Ayacut figures are not given for schemes in Madhya Pradesh and Maharashtra

Item	*Names of districts*	*Total*
	thousand acres	
G.C.A.		
C.C.A.		
Ayacut		

10. Area proposed to be irrigated annually and intensity of irrigation

Intensity of irrigation is worked out as percentage of area irrigated in each season (*kharif rabi, abi, tabi,* hot weather *etc.*) on total C.C.A. in case of Madhya Pradesh and Maharashtra and on total Ayacut in case of Andhra Pradesh, Mysore and Orissa;

	Area proposed to be irrigated annually	*Intensity of irrigation*
(i) Perennial		
(ii) Two seasonal		
(iii) *Kharif*		
(iv) *Rabi*		
(v) Hot weather		
(vi) **Total**		

11. Normal rainfall and river supply proposed to be diverted

(i) If there is more than one canal separate tables are prepared for each major canal;
(ii) figures for column 2 are read from monthly Isohytel maps;
(iii) figures in column 3 and 4 are based on the sum-total of the rainfall figures for the month for all the stations in the commanded area divided by the number of stations;
(iv) figures in column 6 represent

$$\frac{\text{average cusecs proposed to be diverted during the month}}{\text{authorised capacity of the canal}}$$

(v) figures in columns 2 to 4 are correct to first place of decimal and those in columns 5 and 6 to two places of decimal

Month	Rainfall			River supply proposed to be diverted	Capacity factor
	Normal	Maximum	Minimum		
	........inches			........T.M.C.	
June					
July					
—					
—					
April					
May					
Total					

12. **(a) Depth of sub-soil water table below ground level in the area proposed to be irrigated**
    (b) Nature and extent of fluctuation in the water table
    (c) Has any study been made of the likely effect of the introduction of irrigation on sub-soil water-table ?

    Information is given only where data based on regular observation are available

13. **(a) Characteristics of soil(s) in the commanded area**

    Results of scientific soil survey if carried out are given, otherwise general classification specifying soil texure with depth of soil crust

    (b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

    Information is given only where scientific studies have been made

14. **Existing pattern of cultivation in the area proposed to be irrigated**
    (i) Paddy, wheat, sugarcane and cotton are specified individually; any other crop which covers more than 5 percent of the total cropped area is also specified; all other crops are grouped under 'others';
    (ii) crop percentages are worked out on the 'Total cropped area' as given in the last column and are correct to the first place of decimal.

Perennial			Two seasonal						Total cropped area (T. acres)
Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	Percentage of principal crops		Total area (T. acres)	

15. **(a) Proposed pattern of irrigated cultivation**

(i) Paddy, wheat, sugarcane and cotton are specified individually; any other crop which covers more than 5 percent of the total cropped area is also specified, all other crops are grouped under 'others';

(ii) crop percentages are worked out on the 'Grand Total' as given in the last column and are correct to the first place of decimal

Perennial			*Two seasonal*						
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Grand Total (T. acres)*

(b) Are there any rules for regulating crop pattern ?

16. **Duty and Delta at canal head (as anticipated)**

Overall delta represents

$$\frac{\text{area proposed to be irrigated annually vide item 10}}{\text{total annual river supply proposed to be diverted vide item 11}}$$

Duty (acres per mean cusec)			*Delta (feet)*			
Perennial	*Kharif*	*Rabi*	*Perennial*	*Kharif*	*Rabi*	*Overall*

17. **(a) Number of tanks in operation in the area proposed to the irrigated and the area irrigated therefrom**

It is specified whether area irrigated by tanks is included in or excluded from the C.C.A. or Ayacut of the project

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

It is specified whether the area irrigated by wells is included in or excluded from the C.C.A. or Ayacut of the project

18. **Quantum of river supplies available in relation to withdrawals**

Whether river supply data available and whether supplies are adequate to meat irrigation requirements.

POWER ASPECTS

19. River supply proposed to be diverted and operation head

Month	*Range of operation head (feet)*	*Supply (average) passing through turbines (cusecs)*
June		
July		
—		
—		
April		
May		
Total		**T.M.C.**

20. Proposed disposal of tail-race waters

Month	*Particulars*
June	
July	
—	
—	
April	
May	

21. Quantum of river supplies available in relation to withdrawals

Whether river supply data available; and whether supplies are adequate to meet power requirements

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Aspects such as navigation, water supply for towns, supplies given for industrial uses are specified

23. Extent and type of area submerged by reservoir

Class of land (agricultural, forest or waste) that would be submerged. If the area lies outside the State, to what extent and in what State

24. Total cost of the scheme

25. Financial return of the scheme

Percentage of net return on the total capital outlay

26. Cost per acre irrigated

27. Cost per kW. power produced

28. Main features and purpose of the scheme

29. Special features of the scheme

This item is included only if there are special features not covered by items 1-28 above

Section 3

Particulars of Major and Medium Projects

TORRIGEDDA PUMPING SCHEME

IC. 1-G. 10-A1

1. **Name of State** Andhra Pradesh (formerly in Madras)

2. **Scope of the scheme or system**

Irrigation scheme; lift (maximum 45 feet); power from Machkund; Ayacut 15,400 acres

3. **Source of supply**

Godavari at Purushotta Patnam ;
Considerable utilisation upstream, both existing and proposed

4. Not applicable

5. **Description of the headworks**

The head works consists of three deep well pumps of 740 H.P., each capable of dischanging 100 cusecs ; one stand by installed in separate well and a sump well for collecting water from a reinforced concrete conduit 5 feet × 6 feet, 650 feet long from water edge of river

6. **Description of the canal**

Main Canal (contour); left bank; 2 miles long (branches 30.8 miles); one seasonal; unlined; authorised capacity **176 cusecs**

7. (a) **Nature of investigations carried out up-to-date** Project sanctioned

(b) **Actual or probable date of beginning of construction** April 1958

8. **Probable date of beginning of operation** July 1962

IRRIGATION ASPECTS

9. **Gross commanded area, culturable commanded area and Ayacut, district-wise**

District	East Godavari	
G.C.A.		26,000 acres
C.C.A		20,000 ,,
Ayacut		15,400 ,,

10. **Area proposed to be irrigated annually and intensity of irrigation**

	Area proposed to be irrigated	*Intensity of irrigation on Ayacut*
Kharif	15,400 acres	100.0 percent

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	............*inches*	....		....*T.M.C*....	
June	6.5	8.3	1.6	0.11	0.24
July	9.5	19.8	3.4	0.46	0.98
August	7.8	14.6	2.0	0.46	0.98
September	7.9	13.2	4.0	0.46	1.01
October	6.5	12.6	1.4	0.46	0.98
November	2.2	5.1	Nil	0.46	1.01
December	0.2	1.6	,,	—	—
January	0.2	Nil	,,	—	—
February	0.5	2.5	,,	—	—
March	0.5	2.6	,,	—	—
April	1.5	7.0	,,	—	—
May	2.5	5.7	,,	—	—
Total	**45.8**			**2.41**	

12. Not available

13. (a) **Characteristics of soil in the commanded area** Alluvial

(b) **Has any study been made of the likely effect of introduction of irrigation on soil characteristics?**
No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif							*Total cropped area (T. acres)*
Percentage of principal crops							
Jowar	*Redgram*	*Gingelly*	*Rain-fed paddy*	*Bengal gram*	*Horse gram*	*Tobacco*	
46.0	18.0	6.0	6.0	6.0	6.0	12.0	15.4

15. (a) **Proposed pattern of irrigated cultivation**

Kharif			*Total area (T. acres)*
Percentage of principal crops			
Paddy	*Bajra*	*Cholam*	
55.0	25.0	20.0	15.4

(b) Are there any rules for regulating crop pattern ? No

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		*Delta (feet)*		
Paddy	*Dry crops*	*Paddy*	*Dry crops*	*Overall*
70	140	5.1	1.7	3.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

Ni

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Extent and type of area submerged by reservoir Nil

24. Total cost of the scheme Rs. 36 lakhs (1955)

25. Financial return of the scheme

9.44 percent (based on betterment levy Rs. 200 per acre for wet and Rs. 100 per acre for dry crop charges for power, water rates Rs. 11.25 per acre for wet and Rs. 7.50 per acre for dry crops)

26. Cost per acre irrigated Rs. 237

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

SWARNA PROJECT

2C.1-G.5-A.2

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)

2. **Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage ; Ayacut 7,000 acres, includes Ayacut of Jowli Nala 2,689 acres

3. **Source of supply**

Swarna near Nirmal / **Godavari**
Existing utilisation upstream : minor tanks only

4. **Description of the reservoir or tank**

Live storage	1.26 T.M.C.
Dead storage	0.22 ,,
Carry-over	0.30 ,,
Annual reservoir losses	0.47 ,,
Filling period	July to Oct.
Depletion period	Nov. to June
Catchment area	112 square miles
Area submerged	3,580 acres
Full reservoir level	R.L. 1,183
Minimum pond level	R.L. 1,163

5. **Description of the headworks**

Dam : earthen, 7,100 feet long, 45 feet high

Spillway : over-flow weir, 3,680 feet long ; capacity 80,000 cusecs

Outlets : two vents each 3 feet x 4 feet ; total capacity 100 cusecs and two vents, each 2 feet x 2 feet, total capacity 10 cusecs.

6. **Description of the canals**

Left Flank Canal (contour) ; 15.5 miles long ; perennial ; unlined ; authorised capacity **100 cusecs**

Right Flank Canal (contour) ; 3.25 miles long ; perennial ; unlined ; authorised capacity **10 cusecs**

7. (a) **Nature of investigations carried out up-to-date** Project sanctioned

(b) **Actual or probable date of beginning of construction** June 1961

8. **Probable date of beginning of operation** June 1964

IRRIGATION ASPECTS

9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Adilabad

	Left Flank Canal	*Right Flank Canal*	*Total*
	thousand acres		
G.C.A.	21.3	4.2	25.5
C.C.A.	19.5	1.5	21.0
Ayacut	6.5	0.5	7.0

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated		*Intensity of irrigation on Ayacut*	
	Left Flank Canal	*Right Flank Canal*	*Left Flank Canal*	*Right Flank Canal*
	thousand acres		percentage	
Perennial (Garden)	0.5	—	7.7	—
Abi	6.0	0.5	92.3	100.0
Tabi	2.1	—	32.3	—
Total	8.6	0.5	132.3	100.0

11. Normal rainfall and river supply proposed to be diverted (both canals)

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
	inches			T.M.C.	
June	6.2	17.5	1.8	0.11	0.39
July	12.0	21.5	5.2	0.28	0.95
August	6.9	12.5	1.3	0.27	0.92
September	6.5	12.6	2.4	0.22	0.77
October	1.7	7.2	Nil	0.21	0.71
November	1.1	9.3	,,	0.17	0.60
December	1.1	0.2	,,	0.10	0.34
January	0.1	1.1	,,	0.10	0.34
February	0.7	4.9	,,	0.08	0.30
March	0.3	1.5	,,	0.08	0.27
April	0.4	0.9	,,	0.04	0.14
May	0.8	3.6	,,	Nil	—
Total	37.8			1.66	

12. Not available

13. (a) Characteristics of soil in the commanded area Sandy loam

(b) Has any study been made of the likely effect of introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		*Kharif*					*Total cropped area (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	
Garden		*Paddy*	*Maize*	*Jowar*	*Others*		
7.1	0.5	38.4	17.4	14.1	23.0	6.5	7.0

15. (a) Proposed pattern of irrigated cultivation

Perennial		*Abi*		*Tabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Garden		*Paddy*		*Paddy*		
5.5	0.5	71.4	6.5	23.1	2.1	9.1

(b) Are there any rules for regulating crop pattern ? No

16. Duty and Delta at canal head (as anticipated)

Perennial — June to February (270 days)

Abi — 15th June to end of November (165 days)

Tabi — end of December to end of April (122 days)

Duty (acres per mean cusec)			*Delta (feet)*			
Perennial Garden	*Abi*	*Tabi*	*Perennial Garden*	*Abi*	*Tabi*	*Overall*
273	82	50	2.0	4.0	5.1	4.2

17. (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

14 tanks, area excluded from the Ayacut

(b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

320 wells, with Ayacut 118 acres, merged with the Ayacut

18. **Quantum of river supplies available in relation to withdrawals**

River supply data not available

19. to 21. Not applicable

GENERAL

22. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

23. **Extent and type of area submerged by reservoir**

2,630 acres (1500 acres dry, 55 acres wet, and rest waste land) in Andhra Pradesh and about 950 acres in Maharashtra. Total 3,580 acres

24. **Total cost of the scheme**	Rs. 48 lakhs
25. **Financial return of the scheme**	1.91 percent (anticipated)
26. **Cost per acre irrigated**	Rs. 525

27. Not applicable

28. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

UPPER SILERU HYDRO-ELECTRIC PROJECT-STAGE 1

3C.1-G.12-A.3

1. **Name of State** Andhra Pradesh (formerly in Madras)

2. **Scope of the scheme or system**

Hydro-electric schemes; flow-cum-storage; power, 2 units of 60,000 k.W. each (storage at Machkund)

3. **Source of supply**

Sileru near Guntevada/Sabari/**Godavari**
Utilisation upstream :
existing : Machkund hydro-electric scheme
proposed : Jalaput dam power project, Lower Machkund scheme

4. Not applicable

5. **Description of the headworks**

Weir 35 feet high with 20 feet high crest gates. Full reservoir level R. L. 1,360. Total length of masonry including spillway 1,380 feet with earthen embankments 670 feet on flanks. Capacity 250,000 cusecs.

Regulator : five vents, 12 feet x 8 feet, authorised capacity 1,800 cusecs

Pondage above anicut 3.1 T.M.C.

6. **Description of the canal**

A short inlet channel to forebay ; capacity **10,000 cusecs**

7. (a) **Nature of investigations carried out up-to-date**

In September 1959, after an agreement between the Chief Ministers of Andhra Pradesh and Orissa, the Planning Commission authorised starting preliminary work on this project. In December 1959, the Government of Andhra Pradesh accorded sanction to the Project.

(b) **Actual or probable date of beginning of construction** December 1959

8. **Probable date of beginning of operation** 1964

9. to 18. Not applicable

POWER ASPECTS

19. **River supply proposed to be diverted and operation head**

Operation head—310 feet
Mean supply passing through turbines—1,800 cusecs (56.8 T.M.C. annually)

20. **Proposed disposal of tail-race waters**

Tail race waters will be let into the river (Sileru)

21. **Quantum of river supplies available in relation to withdrawals**

River supply data not available ; but supplies are likely to be adequate for project requirements.

GENERAL

22. Aspects other than irrigation and power: water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

5,299 acres (all forest) at R.L. 1,360 ; 941 acres in Andhra Pradesh and 4,358 acres in Orissa

24. Total cost of the scheme Rs. 6,27 lakhs (1959) exclusive of transmission lines

25. Financial return of the scheme 14.8 percent in 4th year of operation

26. Not applicable

27. Cost per k.W. power produced Rs. 523

28. Main features and purpose of the scheme Generation of power

KHARADI PROJECT

4C. 1-G.9-Ma.1

1. **Name of State**	Madhya Pradesh

2. **Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage ; C.C.A. 12,444 acres

3. **Source of supply**

Pandharipat Nalla near Wari/Wainganga/Pranhita/**Godavari**

Utilisation upstream :

existing :	nil
proposed :	nil

4. **Description of the reservoir or tank**

Live storage	0.48 T.M.C.
Dead storage	0.04 ,,
Carry-over	Not available
Annual reservoir losses	0.14 T.M.C.
Filling period	June to September
Depletion period	July to February
Catchment area	13.1 square miles
Area submerged	1,039 acres
Full reservoir level	R. L. 1,056
Minimum pond level	R.L. 1,038

5. **Description of the headworks**

Dam :	earthen, 380 feet long, 46.5 feet high (subsidiary bund 1,780 feet)
Spillway :	150 feet long, capacity 3,545 cusecs
Outlets :	3 feet × 4 feet on left, capacity 93 cusecs ; and 2 feet × 3 feet on right, capacity 36 cusecs

6. **Description of the canals**

Kharadi Left Bank Canal (initially contour then ridge) ; 12 miles long (branches 5.6 miles) ; two seasonal ; unlined ; capacity **93 cusecs**

Kharadi Right Bank Canal (contour) ; 8 miles long (branches 3.1 miles) ; two seasonal ; unlined ; capacity **36 cusecs**

7. (a) **Nature and investigations carried out up-to-date**

Tank already completed, canals are under construction

(b) **Actual or probable date of beginning of construction**	April 1954
8. **Probable date of beginning of operation**	1961-62

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Balaghat

	Left Bank Canal	*Right Bank Canal*	*Total*
	thousand acres		
G.C.A.	10.1	6.4	16.5
C.C.A.	7.3	5.1	12.4

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated			*Intensity of irrigation*
	Right Bank Canal	*Left Bank Canal*	*Total*	
	thousand acres			*percentage*
Kharif	6.5	2.5	9.0	72.6
Rabi	0.7	0.3	1.0	8.0
Total	**7.2**	**2.8**	**10.0**	**80.6**

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Left Bank Canal*	*Right Bank Canal*	*Left Bank Canal*	*Right Bank Canal*
1	2	3	4	5		6	
	inches			*T.M.C.*			
June	9.4	33.1	0.5	Nil	Nil	—	—
July	24.1	48.2	9.2	0.06	0.02	0.24	0.21
August	19.5	45.1	6.7	0.07	0.03	0.28	0.31
September	10.9	20.6	1.3	0.15	0.06	0.62	0.65
October	2.6	12.4	Nil	0.20	0.08	0.80	0.83
November	0.5	3.7	,,	0.03	0.01	0.12	0.11
December	0.1	2.8	,,	0.01	0.01	0.04	0.04
January	0.7	5.9	,,	0.01		0.04	0.04
February	1.0	7.8	,,	0.01		0.04	0.04
March	0.6	4.1	,,	Nil	Nil	—	—
April	0.6	3.5	,,	,,	,,	—	—
May	0.5	3.0	,,	,,	,,	—	—
Total	**70.5**			**0.54**	**0.21**		

12. Not available

13. (a) Characteristics of soils in the commanded area

Soils locally known as '*Kanhar*' (deep black soil with high clay content) and '*Morand*' (red soil with low admixture of clay)

(b) Has any study been made of the likely effect of the introduction of irrigation on soil charactersitics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif		*Rabi*		*Total cropped area (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Paddy		*Wheat and other crops*		
78.6	7.2	23.2	2.3	9.5

15.(a) Proposed pattern of irrigated cultivation

Crop period : *Kharif,* from 15th July to 14th November — 122 days
Rabi, from 15th November to 15th February — 93 days

Kharif		*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Paddy		*Wheat*		
90.0	9.0	10.0	1.0	10.0

(b) Are there any rules for regulating crop pattern ? No

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		*Delta (feet)*		
Kharif	*Rabi*	*Kharif*	*Rabi*	*Overall*
136	207	1.8	0.9	1.7

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Five small tanks, irrigating 500 acres, included in C.C.A.

(b) Not available

18. Quantum of river supples available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

The area submerged consists of 60 percent forest area and 40 percent other land

24. Total cost of the scheme Rs. 25 lakhs

25. Financial return of the scheme

Anticipated at 2.22 percent at the end of 20 years

26. Cost per acre irrigated Rs. 276

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture, thereby improving crop quality and yield over an area of 10,000 acres.

NEHLESARA PROJECT

5C. 1-G.9-Ma.2

1. Name of State Madhya Pradesh

2. Scope of the scheme or system

Irrigation scheme ; flow-cum-storage ; C.C.A. 13,165 acres

3. Source of supply

Chandan river near Nehlesara/Wainganga/Pranhita/**Godavari**

Utilisation upstream :

existing : nil

proposed : nil

4. Description of the reservoir or tank

Live storage	0.51 T.M.C.
Dead storage	0.06 ,,
Carry-over	0.13 ,,
Annual reservoir losses	0.06 ,,
Filling period	June to September
Depletion period	July to February
Catchment area	25.3 square miles
Area submerged	525 acres
Full reservoir level	R.L. 1,214
Minimum pond level	R.L. 1,177

5. Description of the headworks

Dam :	earthen, 1,900 feet long, 72 feet high, (subsidiary bund 6,775 feet long)
Spillway :	290 feet long, capacity 10,080 cusecs
Outlets :	sluice 4.5 feet x 5.0 feet, capacity 170 cusecs

6. Description of the canal

Nehlesara Canal (initially contour, then ridge) ; right bank ; 12.8 miles long (branches 15.7 miles); two seasonal ; unlined ; capacity **170 cusecs**

7. (a) Nature of investigations carried out up-to-date

Topographical surveys completed ; geological surveys for waste weir in progress

(b) Actual or probable date of beginning of construction December 1957

8. Probable date of beginning of operation 1963-64

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District	Balaghat	
G.C.A.	23,700	acres
C.C.A.	13,200	,,

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Kharif	9,800 acres	74.2 percent
Rabi	1,000 ,,	7.6 ,,
Total	**10,800** ,,	**81.8** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	inches			*T.M.C.*	
June	8.9	30.9	0.6	Nil	—
July	16.7	30.6	6.3	0.09	0.20
August	13.3	24.0	4.3	0.11	0.24
September	7.7	17.1	1.0	0.24	0.54
October	2.2	9.6	Nil	0.30	0.66
November	0.5	4.3	,,	0.04	0.09
December	0.2	2.7	,,	0.01	0.02
January	0.7	5.6	,,	0.01	0.02
February	0.7	3.6	,,	0.01	0.02
March	0.8	5.5	,,	Nil	—
April	0.5	3.3	,,	,,	—
May	0.8	5.0	,,	,,	—
Total	**53.0**			**0.81**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Black cotton soil, effective depth 4 to 5 feet; light soil in tail reaches

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif		*Rabi*		
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Total cropped area (T. acres)*
Paddy and others		*Wheat and others*		
78.8	10.4	21.2	2.8	13.2

15. (a) Proposed pattern of irrigated cultivation

Crop period : *Kharif*, from 15th July to 14th November — 122 days

Rabi, from 15th November to 15th February — 93 days

Kharif		*Rabi*		
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand Total (T. acres)*
Paddy		*Wheat*		
90.7	9.8	9.3	1.0	10.8

(b) Are there any rules for regulating crop pattern ? No

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		*Delta (feet)*		
Kharif	*Rabi*	*Kharif*	*Rabi*	*Overall*
136	207	1.8	0.9	1.7

7 (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

31 small tanks, irrigating a total area of 7,500 acres, included in C.C.A.

(b) Not available

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23.	**Extent and type of area submerged by reservoir**	Mostly forest area
24.	**Total cost of the scheme**	Rs. 1,20 lakhs
25.	**Financial return of the scheme**	1.0 percent
26.	**Cost per acre irrigated**	Rs. 1,100
27.	Not applicable	

28. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture, thereby improving crop quality and yield over an area of about 11,000 acres.

MULA PROJECT

6C.1-G.2-M.1

1. **Name of State** Maharashtra (formerly in Bombay)

2. **Scope of the scheme or system**

   Irrigation scheme; flow-cum-storage: additional C.C.A. 298,200 acres

3. **Source of supply**

   Mula near Baregoan-Nandur/Pravara/**Godavari**
   Utilisation upstream:
   existing : nil
   proposed : nil

4. **Description of the reservoir or tank**

Live storage	32.6 T.M.C.
Dead storage	4.0 ,,
Carry-over	12.9 ,,
Annual reservoir losses	2.7 ,,
Filling period	June to September
Depletion period	June to May
Catchment area	878 square miles
Area submerged	16,000 acres
Full reservoir level	R.L. 1,824
Minimum pond level	R.L. 1,744

5. **Description of the headworks**

   Dam : earthen, 8,000 feet long, 165 feet high
   Spillway : tainter gates, 12 numbers, 40 feet x 24 feet each, total capacity 210,000 cusecs
   Outlets : capacity 2,090 cusecs

6. **Description of the canals**

   (i) Mula Right Bank Canal (contour): 44 miles long; perennial; lined ; capacity **1,840 cusecs**

   (ii) Mula Left Bank Canal (contour); 12 miles long ; perennial; unlined; capacity **250 cusecs** out of which internal use on this Canal will be 40 cusecs. At its tail, the Mula Left Bank Canal drops **210 cusecs** into the Pravara Right Bank Canal at its mile 28

   (iii) Increase in capacity of Pravara Right Bank Canal below mile 28 from **50 cusecs to 210 cusecs**; the Pravara Right Bank Canal below mile 28 will cease to get any water supply from Ozar. The present capacity of **152 cusecs** of the Pravara Right Bank Canal will be utilised in the upper 28 miles.

7. (a) Nature of investigations carried out up-to-date

Project sanctioned in 1957, revised project under preparation: particulars given herein are for the revised project. See item 29 below

(b) Actual or probable date of beginning of construction 1956-57

8. Probable date of beginning of operation 1967-68

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Ahmednagar

	Mula Left Bank Canal		*Mula Right Bank Canal*	*Total*
	to be transfered from Pravara Right Bank Canal	*New*		
	thousand acres			
G.C.A.	36.0	6.0	349.0	391.0
C.C.A.	30.8	5.0	296.8	332.6
Deduct area under wells				3.6
Deduct C.C.A. under Pravara Right Bank Canal				30.8
Additional C.C.A.				298.2

10. Area proposed to be irrigated annually and intensity of irrigation (both canals)

	Area proposed to be irrigated	*Intensity of irrigation*
		(percentage on 329,000 acres)
Perennial	43,600 acres	13.3 percent
Two seasonal	32,900 ,,	10.0 ,,
Kharif	44,000 ,,	13.3 ,,
Rabi	100,000 ,,	30.4 ,,
Hot weather	10,900 ,,	3.3 ,,
Total	**231,400** ,,	70.3 ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Right Bank Canal*	*Left Bank Canal*	*Right Bank Canal*	*Left Bank Canal*
1	2	3	4	5	6	7	8
	........*inches*........			....*T.M.C.*......			
June	4.0	9.0	1.6	2.60	0.30	0.55	0.46
July	4.6	11.9	1.7	2.90	0.40	0.59	0.60
August	3.6	9.4	0.7	4.20	0.50	0.85	0.75
September	7.1	14.1	2.6	1.60	0.20	0.34	0.31
October	2.7	11.0	Nil	2.00	0.30	0.41	0.45
November	1.4	8.9	,,	3.50	0.50	0.73	0.77
December	0.3	3.1	,,	2.10	0.30	0.43	0.45
January	0.1	1.3	,,	0.50	0.10	0.10	0.15
February	0.1	0.3	,,	0.80	0.10	0.18	0.17
March	0.1	4.3	,,	0.80	0.10	0.16	0.15
April	0.1	0.5	,,	3.60	0.40	0.75	0.62
May	0.7	0.4	,,	3.60	0.40	0.73	0.60
Total	**24.8**			**28.20**	**3.60**		
Total for both canals				**31.80**			

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam, silty loam to clayey loam, clayey loam to clay in the proportion of 15 percent, 23.8 percent and 61.2 percent respectively

(b) Has any study been made of the likely effect of introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated (both canals)

Perennial		*Two seasonals*			*Kharif*		*Rabi*					*Total cropped area (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	
Sugarcane		*Cotton*	*Others*		*Bajri*		*Jowar*	*Wheat*	*Gram*	*Others*		
0.8	2.6	6.6	1.2	26.0	21.6	72.0	47.0	5.6	4.4	12.5	232.0	332.6

15. (a) Proposed pattern of irrigated cultivation

Perennial			*Two seasonal*		*Kharif*		*Rabi*			*Hot weather*		
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand total (T. acres)*
Sugar-cane	*Others*		*Cotton long stapple*		*Others*		*Wheat*	*Jowa*		*Others*		
Mula Right Bank Canal												
14.1	4.8	38.6	14.2	29.2	18.9	38.9	5.3	38.0	88.7	4.7	9.6	205.0
Mula Left Bank Canal												
14.1	4.8	5.0	14.2	3.7	18.9	5.0	5.3	38.0	11.4	4.7	1.3	26.4

(b) **Are there any rules for regulating crop pattern ?**

No, but crop pattern will be regulated by contract provisions

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)			*Delta (feet)*			
	Kharif	*Rabi*	*Hot weather*	*Kharif*	*Rabi*	*Hot weather*	*Total*
Sugarcane	65	70	50	3.7	3.4*	4.8*	11.6
Other perennials	100	100	75	2.4	2.4*	3.2*	8.0
Cotton	200	400	100	1.2	0.6	2.4	4.2
Kharif	200	—	—	1.2	—	—	1.2
Rabi Jowar	—	200	—	—	1.2	—	1.2
„ Wheat	—	150	—	—	1.6	—	1.6
Hot weather	—	—	100	—	—	2.4	2.4
At canal head	100	100	94	2.4	1.2	2.5	
Overall delta							3.2

* *Applies to 20 percent of the crop : the remaining 80 percent area under perennials will not get canal water during rabi ; from 15th February to 14th April also 80 percent of the area under perennials will not get canal water*

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

2,240 wells of which about 550 wells are for drinking water supply; the remaining provide water for irrigation of 2 acres per well. The area under wells is excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Culturable land 5,400 acres, waste land 10,600 acres; all in Maharashtra

24. Total cost of the scheme Rs. 15,17 lakhs (estimate under revision)

25. Financial return of the scheme 4.35 percent (under revision)

26. Cost per acre irrigated Rs. 687 (under revision)

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture—230,000 acres.

29. Special features of the scheme

During construction, the following changes have been made in the design and scope of the project, as originally approved :—

(i) Site of dam has been changed from Wanjawadi to Baregoan-Nandur, two miles lower down. Original proposal was to construct a masonry dam.

(ii) Live capacity at the new site is 32.6 T.M.C. as against 20.9 T.M.C. at the old site. Carry over now proposed is 9.0 T.M.C. against an earlier figure of 0.8 T.M.C.

(iii) The C.C.A., as now revised, is 329,000 acres against the earlier figure of 217,000 acres.

(iv) It is now proposed to irrigate 231,400 acres against 131,300 acres in the original project. The revised crop pattern compared with the original is as below :

	Original		*Revised*	
	Area proposed to be irrigated	*Intensity of irrigation*	*Area proposed to be irrigated*	*Intensity of irrigation*
	thousand acres	percentage	thousand acres	percentage
Perennial	27.5	12.6	43.6	13.3
Two seasonals	13.8	6.4	32.9	10.0
Kharif	39.1	18.0	44.0	13.4
Rabi	45.4	20.9	100.0	30.4
Hot weather	5.5	2.5	10.9	3.3
Total	**131.3**	**60.4**	**231.4**	**70.4**

(v) The revised project proposes to divert 31.7 T.M.C. against the original proposal to divert 26.0 T.M.C., as per details below

	Original T.M.C.	*Revised* T.M.C.
15th June to 14th Oct.	9.1	12.7
15th Oct. to 14th Feb.	8.9	9.3
15th Feb. to 14th June	8.0	9.7
Total	**26.0**	**31.7**

(vi) The changes in Duty and Delta are as follows :

	Duty (*acres per mean cusec*)			*Delta* (*feet*)			
	Kharif	*Rabi*	*Hot weather*	*Kharif*	*Rabi*	*Hot weather*	*Overall*
Original	94	104	43	2.6	2.4	5.6	4.5
Revised	100	100	94	2.5	1.3	2.5	3.1

(vii) The cost of the project has been raised from Rs. 9,33 lakhs to Rs. 15,17 lakhs. This increase has already been brought to the notice of the Planning Commision and the Third Five Year Plan shows the cost of the project as Rs. 15,00 lakhs

DHEKU PROJECT

7C.1-G.1-M.2

1. **Name of State** Maharashtra (formerly in Hyderabad)
2. **Scope of the scheme or system**

   Irrigation scheme; flow-cum-storage; C.C.A. 7,900 acres
3. **Source of supply**

   Dheku at Bhatana/Shiv/**Godavari**

   Utilisation upstream, existing and contemplated : nil
4. **Description of the reservoir or tank**

Live storage	0.43 T.M.C.
Dead storage	0.05 ,,
Carry-over	Nil
Annual reservoir losses	0.18 T.M.C.
Filing period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	100 square miles
Area submerged	1,200 acres
Full reservoir level	R.L. 1,804
Minimum pond level	R.L. 1,790

5. **Description of the headworks**

   Dam : earthen, 2,600 feet long, 45 feet high

   Spillway : 850 feet long, capacity 70,000 cusecs

   Outlets : two vents, 2 feet x 2.5 feet each
6. **Description of the canal**

   Dheku Canal (contour); left bank: 15 miles long; two seasonal ; unlined ; capacity **60 cusecs**

7.	**(a) Nature of investigations carried out up-to-date**	Work in progress
	(b) Actual or probable date of beginning of construction	October 1956
8.	**Probable date of beginning of operation**	End of 1962

IRRIGATION ASPECTS

9. **Gross commanded area and culturable-commanded area, district-wise**

   District Aurangabad

G.C.A.	9,500 acres
C.C.A.	8,000 ,,
Deduct existing irrigation under wells	100 ,,
Net C.C.A.	7,900 ,,

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonals	500 acres	6.3 percent
Kharif paddy	1.000 ,,	12.7 ,,
Kharif others	1.400 ,,	17.7 ,,
Rabi	3,000 ,,	38.0 ,,
Total	**5,900** ,,	**74.7** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	..............*inches*..............			......*T.M.C.*......	
June	4.9	10.1	Nil		
July	5.0	11.0	,,	15th June to 14th Oct.	
August	4.5	9.5	,,	0.28	0.47
September	6.0	13.7	,,		
October	1.6	7.6	,,		
November	1.0	10.5	,,	15th Oct. to 14th Feb.	
December	0.3	1.6	,,	0.23	0.36
January	0.2	2.5	,,		
February	0.2	1.0	,,		
March	0.1	1.0	,,	15 Feb. to 14th June	
April	0.2	9.0	,,	Nil	
May	0.7	5.3	,,		
Total	**24.7**			**0.51**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Detailed surveys not made. Approximate soil classification is sandy loam 35 percent, silty loam to clay loam 35 percent, and clay loam to clay 30 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonals*			*Kharif*				
Percentage of principal crops		*Total area*	*Percentage of principal crops*		*Total area*	*Percentage of principal crops*				*Total area*
Sugarcane	*Others*	*(T. acres)*	*Cotton*	*Others*	*(T. acres)*	*Bajri*	*Pulses*	*Groundnut*	*Others*	*(T. acres)*
1.0	1.9	0.2	6.0	0.5	0.5	23.9	11.3	8.0	2.8	3.7

Continued below

Continued from above

Rabi					*Total cropped area (T. acres)*
Percentage of principal crops				*Total area*	
Wheat	*Jowar*	*Gram*	*Others*	*(T.acres)*	
11.5	24.2	4.5	4.4	3.6	8.0

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*			*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area*	*Percentage of principal crops*		*Total area*	*Percentage of principal crops*	*Total area*	
Others	*(T. acres)*	*Paddy*	*Others*	*(T. acres)*	*Others*	*(T. acres)*	
8.5	0.5	17.0	23.7	2.4	50.8	3.0	5.9

(b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated to conform to the proposed crop pattern

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)		*Delta (feet)*		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonals	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Overall delta at canal head					2.0

17. **(a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigation therefrom

95 wells of which about 35 wells supply drinking water; the remaining are capable of irrigating 2 acres per well; area under wells is excluded from the C.C.A.

18. **Quantum of river-supplies available in relation to withdrawals**

River supply data not available

19. **to 21.** Not applicable

GENERAL

22. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

23. **Extent and type of area submerged by reservoir**

1,210 acres (culturable 1,030, waste 180) all in Maharashtra

24. **Total cost of the scheme**	Rs. 40 lakhs
25. **Financial return of the scheme**	0.76 percent
26. **Cost per acre irrigated**	Rs. 615

27. Not applicable

28. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture - about 6,000 acres

GALHATI PROJECT 8C.1-G.1-M.3

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

Irrigation scheme; flow-cum-storage; C.C.A. 17,800 acres

3. **Source of supply**

Galhati at Shahpur/**Godavari**

Utilisation upstream :

existing : nil

proposed : nil

4. **Description of the reservoir or tank**

Live storage	0.49 T.M.C.
Dead storage	0.09 ,,
Carry-over	Nil
Annual reservoir losses	0.17 T.M.C.
Filling period	15th June to 30 September
Depletion period	15th June to 14th February
Catchment area	109 square miles
Area submerged	1,520 acres
Full reservoir level	R.L. 1,502
Minimum pond level	R.L. 1,490

5. **Description of the headworks**

Dam : earthen, 8,400 feet long, 43 feet high

Spillway : 950 feet long, capacity 72,000 cusecs

Outlets : head regulator left bank, one vent, 3 feet×4 feet;
head regulator right bank, one vent, 4 feet×5 feet

6. **Description of the canals**

Galhati Left Bank Canal (contour) ; 5 miles long; two seasonal; unlined; authorised capacity **24 cusecs**

Galhati Right Bank Canal (contour) ; 6 miles long; two seasonal; unlined; authorised capacity **58 cusecs**

7. (a) **Nature of investigations carried out up-to-date** Project sanctioned

(b) **Actual or probable date of beginning of construction** October 1959

8. Probable date of beginning of operation End of 1963

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Aurangabad

	Left bank canal	*Right bank canal*	*Total*
	................*thousand acres*..........		
G.C.A.	6.4	16.4	22.8
C.C.A.	5.2	13.2	18.4
Deduct existing well irrigation			0.6
Net C.C.A.			17.8

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonals	1,000 acres	5.6 percent
Paddy	800 ,,	4.5 ,,
Kharif	3,100 ,,	17.4 ,,
Rabi	5,000 ,,	28.1 ,,
Total	**9,900 ,,**	**55.6 ,,**

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	.................*inches*.................			......*T.M.C.*......	
June	5.5	17.8	1.4	15th June to 14th Oct.	
July	5.5	20.4	Nil	0.38	0.45
August	5.2	16.6	0.3		
September	7.3	22.8	0.2		
October	1.9	7.9	Nil	15th Oct. to 14th Feb.	
November	1.1	11.6	,,	0.37	0.43
December	0.3	3.7	,,		
January	0.2	2.6	,,		
February	0.2	1.6	,,	15th Feb. to 14th June	
March	0.2	1.6	,,	Nil	—
April	0.2	3.3	,,		
May	0.5	4.1	,,		
Total	**28.1**			0.75	

12. Not available

13. (a) Characteristics of soils in the commanded area

Scientific soil surverys not done; approximate classification is sandy to sandy loam 10 percent, silty loam to clay loam 30 percent and clay loam to clay 60 percent. Soil depth more than 1.5 feet

(b) Has any study been made of the likely effect of introdution of irrigation soil on characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonal*			*Kharif*						
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*						*Total area (T. acres)*
Sugar-cane	*Others*		*Cotton*	*Others*		*Paddy*	*Jowar*	*Bajri*	*Pulsus*	*Groundnut*	*Others*	
0.2	1.3	0.3	21.2	2.1	4.3	0.3	0.8	3.7	15.8	5.4	3.1	5.3

Continued below

Continued from above

Rabi				
Percentage of principal crops			*Total area (T. acres)*	*Total cropped area (T. acres)*
Wheat	*Jowar*	*Others*		
5.0	31.8	9.4	8.5	18.4

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*			*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Cotton		*Paddy*	*Others*		*Jowar*		
10.1	1.0	8.1	31.3	3.9	50.5	5.0	9.9

(b) Are there any rules for regulating crop pattern ?

No; but crop pattern will be regulated by contract provisions

16. Duty and Delta at canal head (as anticipated)

	Duty (*acres per mean cusec*)		*Delta* (*feet*)		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonals	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Overall delta					1.7

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

296 wells capable of irrigating about 2 acres per well; the area under these wells is excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Area submerged 1,520 acres (culturable 1,290 acres, waste 230 acres)

24. Total cost of the scheme	Rs. 58 lakhs
25. Financial return of the scheme	2.26 percent
26. Cost per acre irrigated	Rs. 484

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

SINDHPHANA PROJECT

9C.1-G.1-M.4

1. Name of State Maharashtra (formerly in Hyderabad)

2. Scope of the scheme or system

Irrigation scheme; flow-cum-storage; C.C.A. 8,200 acres

3. Source of supply

Sindhphana at Hingalwadi/**Godavari**
Utilisation upstream :
existing : nil
proposed : nil

4. Description of the reservoir or tank

Live storage	0.38 T.M.C.
Dead storage	0.06 ,,
Carry-over	Nil
Annual reservoir losses	0.09 T.M.C.
Filling period	15th June to 30th Sept.
Depletion period	15th June to 14th Feb.
Catchment area	93 square miles
Area submerged	840 acres
Full reservoir level	R.L. 1,899
Minimum pond level	R.L. 1,878

5. Description of the headworks

Dam : earthen, 5,350 feet long, 62 feet high
Spillway : 1,150 feet long, capacity 66,530 cusecs
Outlets : head regulator, conduit 3 feet × 4 feet, capacity 52 cusecs

6. Description of the canal

Sindhphana Canal (contour); right bank; 10 miles long; two-seasonal; unlined; capacity **52 cusecs**

7. (a) Nature of investigations carried out up-to-date	Project sanctioned
(b) Actual or probable date of beginning of construction	April 1958
8. Probable date of beginning of operation	End of 1962

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Bhir

G.C.A.	12.000 acres
C.C.A.	8,400 ,,
Deduct existing well irrigation	200 ,,
Net C.C.A.	8,200 ,,

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonals	1,000 acres	12.2 percent
Paddy	500 ,,	6.1 ,,
Kharif	2,000 ,,	24.4 ,,
Rabi	3,000 ,,	36.6 ,,
Total	**6,500** ,,	**79.3** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
		............*inches*............		......*T.M.C.*......	
June	5.0	12.9	0.3	15th June to 14th Oct.	
July	4.8	11.2	0.2	0.27	0.49
August	4.5	15.2	0.4		
September	6.9	16.0	0.4		
October	2.3	10.1	Nil	15th Oct. to 14th Feb.	
November	1.0	16.7	,,	0.27	0.49
December	0.4	4.2	,,		
January	0.2	2.1	,,		
February	0.1	1.2	,,	15th Feb. to 14th June	
March	0.2	1.1	,,	Nil	—
April	0.3	3.4	,,		
May	0.9	6.8	,,		
Total	**26.6**			**0.54**	

12. Not available

13. (a) Characteristics of soils in the commanded area

No scientific soil surveys carried out. Approximate classification is sandy to sandy loam, silty loam to clay loam, clay loam to clay in proportion of 10 percent, 30 percent and 60 percent respectively, with soil depth more than 1.5 feet

(b) Has any study been made of the likely effect of introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Two seasonals			*Kharif*						*Rabi*				*Total cropped area (T. (acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*					*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	
Cotton	*Others*		*Paddy*	*Bajri*	*Pulses*	*Groundnut*	*Others*		*Wheat*	*Jowar*	*Others*		
3.3	0.4	0.3	0.6	29.7	15.5	6.9	7.1	5.0	4.6	24.6	7.3	3.1	8.4

15. (a) Proposed pattern of irrigated cultivation

Two seasonals		*Kharif*			*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Others		*Paddy*	*Others*		*Jowar*		
15.3	1.0	7.7	30.8	2.5	46.2	3.0	6.5

(b) Are there any rules for regulating crop pattern?

No, but crop pattern will be regulated by contract provisions

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)		*Delta (feet)*		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonals	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Overall delta at canal head					1.9

17. (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

(b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

120 wells: capable of irrigating 2 acres per well; area under wells is excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

840 acres (culturable 560 acres, waste 280 acres) all in Maharashtra

24.	**Total cost of the scheme**	Rs. 39 lakhs
25.	**Financial return of the scheme**	1.22 percent
26.	**Cost per acre irrigated**	Rs. 600

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

WAN PROJECT

10C.1-G.1-M.5

1. **Name of State**	Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

Irrigation scheme; flow-cum-storage; C.C.A. 18,500 acres

3. **Source of supply**

Wan at Nagapur/**Godavari**
Utilisation upstream :
  existing : nil
  proposed : nil

4. **Description of the reservoir or tank**

Live storage	0.67 T.M.C.
Dead storage	0.11 ,,
Carry-over	Nil
Annual reservoir losses	0.12 T.M.C.
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	144 square miles
Area submerged	970 acres
Full reservoir level	R.L. 1,489
Minimum pond level	R.L. 1,464

5. **Description of the headworks**

Dam : earthen, 8,000 feet long, 64 feet high
Spillway : 1,125 feet long, capacity 82,900 cusecs
Outlets : head regulators on left and right bank with one vent each 3 feet × 3.5 feet

6. **Description of the canals**

Wan Left Bank Canal (contour); 7 miles long; two seasonal; unlined; capacity **54 cusecs**
Wan Right Bank Canal (contour); 6 miles long; two seasonal; unlined; capacity **43 cusecs**

7. (a) **Nature of investigations carried out up-to-date**	Project sanctioned
(b) **Actual or probable date of beginning of construction**	April 1959
8. **Probable date of beginning of operation**	End of 1963

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Bhir

	Left Bank Canal	*Right Bank Canal*	*Total*
		............*thousand acres*........	
G.C.A.	13.0	10.0	23.0
C.C.A.	10.3	8.2	18.5

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonals	2,600 acres	14.1 percent
Paddy	300 ,,	1.6 ,,
Kharif	3,300 ,,	17.8 ,,
Rabi	5,800 ,,	31.4 ,,
Total	**12,000 ,,**	**64.9 ,,**

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	..............*inches*..............			........*T.M.C.*	
June	6.0	14.3	Nil		
July	6.5	19.1	,,	15th June to 14th Oct.	
August	6.0	15.3	,,	0.43	0.42
September	7.5	18.0	,,		
October	2.1	9.1	,,	15th Oct. to 14th Feb.	
November	0.9	7.9	,,	0.52	0.50
December	0.3	4.6	,,		
January	0.2	4.1	,,		
February	0.3	3.0	,,	15th Feb. to 14th June	
March	Nil	2.8	,,	Nil	
April	0.4	3.1	,,		
May	0.7	6.1	,,		
Total	**30.9**			**0.95**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Scientific soil surveys not carried out; approximate classification is sandy to sandy loam, silty loam to clay loam, clay loam to clay in the proportion of 10 percent, 30 percent and 60 percent respectively with soil depth of more than 1.5 feet

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonals*			*Kharif*						*Rabi*				*Total cropped area (T. acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*					*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	
Sugarcane	*Others*		*Cotton*	*Others*		*Paddy*	*Jowar*	*Pulses*	*Groundnut*	*Others*		*Wheat*	*Jowar*	*Others*		
0.6	2.5	0.6	1.0	1.2	0.4	1.9	31.7	15.6	10.5	6.5	12.2	7.7	14.9	5.9	5.3	18.5

15. (a) Proposed pattern of irrigated cultivation

Two seasonals		*Kharif*			*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Others		*Paddy*	*Others*		*Others*		
21.8	2.6	2.5	27.6	3.6	48.5	5.8	12.0

(b) Are there any rules for regulating crop pattern ?

No; but crop pattern will be regulated by contract provisions

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)		*Delta (feet)*		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonal	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Overall delta at canal head					1.8

17. (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

(b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

166 wells ; capable of irrigating about 2 acres each, area excluded from C.C.A.

18. **Quantum of river supplies available in relation to withdrawals**

River supply data not available

19. to 21. Not applicable

GENERAL

22. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects ; financial returns**

Nil

23. **Extent and type of area submerged by reservoir**

970 acres (culturable 690 acres, waste 280 acres) within Maharashtra

24. **Total cost of the scheme**	Rs. 80 lakhs
25. **Financial return of the scheme**	0.99 percent
26. **Cost per acre irrigated**	Rs. 667

27. Not applicable

28. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

PURNA PROJECT

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

Multipurpose scheme ; flow-cum-storage ; irrigation, C.C.A. 235,200 acres ; power, 15,000 k.W.

3. **Source of supply**

Purna at Yeldari and Siddeshwar/**Godavari**

Utilisation upstream:

existing : nil

proposed : about 1.7 T.M.C.

4. **Description of the dam and reservoir or tank**

	Yeldari Dam	Siddeshwar Dam
Live storage (T.M.C.)	28.87	3.66
Dead storage (T.M.C.)	5.26	5.20
Carry-over (T.M.C.)	11.10	0.40
Annual reservoir losses (T.M.C.)	4.22	2.00
Filling period	June to Oct.	June to Oct.
Depletion period	June to May	June to May
Catchment area (square miles)	2,830	3,000
Area submerged (acres)	26,400	8,300
Full reservoir level (R.L.)	1,515	1,355
Minimum pond level (R.L.)	1,430	1,342

Dam at Yeldari

Dam : masonry gravity, 821 feet long, 168 feet high ; earthen flanks 9,400 feet long

Spillway : 491 feet long, 10 tainter gates, 41 feet × 38 feet each, total capacity 384,000 cusecs

Outlets : river sluices, three, 6 feet 3 inches × 8 feet each, total capacity 3,000 cusecs ; power sluices, two vents, 11 feet diameter

5. **Description of the headworks (at Siddeshwar)**

Dam : masonry, 276 feet long, 125·50 feet high; earthen flanks 15,285 feet long

Spillway : (a) 664 feet long, 14 gates, 40 feet × 14 feet each, total capacity 190,000 cusecs

(b) waste weir on left flank, 3,520 feet long, capacity 160,000 cusecs

Outlets : irrigation sluices, three, 15 feet × 10 feet each, total capacity 2,000 cusecs

6. Description of the canal

Purna Canal (contour) ; left bank ; 34 miles long ; perennial ; lined ; capacity **2,000 cusecs**

7.	**(a) Nature of investigations carried out up-to-date**	Project sanctioned in 1961
	(b) Actual or probable date of beginning of construction	1957-58
8.	**Probable date of beginning of operation**	June 1962

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

Item	*Names of districts*		*Total*
	Parbhani	*Nanded*	
	......................*thousand acres*	....	
G.C.A.	250.0	43.0	239.0
C.C.A.	210.8	36.0	246.8
Deduct for existing well irrigation			11.6
Net C.C.A.			235.2

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Perennials	38,000 acres	16.2 percent
Two seasonals	15,200 ”	6.5 ”
Kharif	50,200 ”	21.3 ”
Rabi	39,600 ”	16.8 ”
Hot weather	9,000 ”	3.8 ”
Total	**152,000** ”	**64.6** ”

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
	2	3	4	5	6
		................*inches*	....	..*T.M.C.*.....	
June	4.6	7.3	3.6	1.73	0.33
July	12.4	27.2	4.9	1.93	0.36
August	11.0	19.8	2.3	2.00	0.37
September	7.1	13.0	2.5	3.36	0.65
October	1.6	3.3	0.3	2.72	0.51
November	0.2	1.0	Nil	2.63	0.51
December	Nil	0.1	,,	2.35	0.44
January	0.2	1.3	,,	2.35	0.44
February	0.6	2.4	,,	2.16	0.45
March	0.2	0.7	,,	2.21	0.41
April	0.7	2.0	,,	2.32	0.45
May	0.7	1.2	0.2	2.38	0.44
Total	**39.3**			**28.14**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 13 percent, silty loam to clay loam 42 percent and clay loam to clay 45 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennials			*Two seasonals*			*Kharif*			
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*
Sugarcane	*Others*		*Cotton*	*Others*		*Jowar*	*Paddy*	*Others*	
0.5	0.5	2.5	21.1	8.7	73.6	17.8	1.5	8.1	67.6

Continued below

Continued from above

Rabi					*Total cropped area (T. acres)*
Percentage of principal crops				*Total area (T. acres)*	
Jowar	*Wheat*	*Gram*	*Others*		
24.1	7.2	5.7	4.8	103.1	246.8

15. (a) Proposed pattern of irrigated cultivation

Perennial			*Two seasonal*		*Kharif*			*Continued below*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Sugarcane	*Others*		*Cotton*		*Paddy*	*Others*		
12.5	12.5	38.0	10.0	15.2	10.0	23.0	50.2	

Continued from above	*Rabi*		*Hot weather*		*Grand Total (T. acres)*
	Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
	Others		*Others*		
	26.1	39.6	5.9	9.0	152.0

(b) **Are there any rules for regulating crop pattern ?**

No, but sanctions will be regulated to conform to the proposed crop pattern

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)			*Delta (feet)*			
Kharif	*Rabi*	*Hot weather*	*Kharif*	*Rabi*	*Hot weather*	*Overall*
132	114	74	1.8	2.1	4.3	4.3

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

5,800 wells, each well capable of irrigating 2 acres excluded from C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River discharge data available for only three years 1958-59 to 1960-61. The total discharge, as recorded, varied from 41 to 126 T.M.C. in these three years.

POWER ASPECTS

19. River supply proposed to be diverted and operation head

Month	*Range of operation head (feet)*	*Supply passing through turbines (cusecs)*
June*	101	668
July	103	655
August	105	642
September	105.5	614
October	110	612
November	108	625
December	106	636
January	103	655
February	100	675
March	96	702
April	92	733
May	86	785
		21.03 T.M.C.

* *June means 15th June to 14th July; similarly for every month*

20. Proposed disposal of tail-race waters Used for irrigation — ex-siddheshwar dam

21. Quantum of river supplies available in relation to withdrawals

See item 18 above

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

	Yeldari		Siddeshwar	
Culturable area	19,800	acres	6,200	acres
Waste land and forest	6,600	,,	2,100	,,
Total	**26,400**	,,	**8,300**	,,

The submergence lies entirely in Maharashtra

24. Total cost of the scheme

(i) Rs. 12,84 lakhs (irrigation)

(ii) Rs. 1,72 lakhs (power)

25. Financial return of the scheme

7.8 percent on capital outlay (anticipated)

26. Cost per acre irrigated Rs. 844

27. Cost per k.W. power installed Rs. 1,146

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture (150,000 acres) and generation of power (15,000 k.W.)

KHELNA PROJECT

12C.1-G.3-M.7

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

   Irrigation scheme ; flow-cum-storage ; C.C.A. 9,400 acres .

3. **Source of supply**

   Khelna at Palod/Purna/**Godavari**

   Utilisation upstream :

   existing : nil

   proposed : nil

4. **Description of the reservoir or tank**

Live storage	0.39 T.M.C.
Dead storage	0.05 ,,
Carry-over	Nil
Annual reservoir losses	0.09 T.M.C.
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	62 square miles
Area submerged	930 acres
Full reservoir level	R.L. 2,096
Minimum pond level	R.L. 2,079

5. **Description of the headworks**

   Dam : earthen, 5,300 feet long, 69 feet high

   Spillway : 750 feet long, capacity 53,600 cusecs

   River sluices : nil

   Canal sluices : right bank, one vent, 4 feet × 4 feet

6. **Description of the canal**

   Khelna Canal (contour) ; right bank ; 13 miles long ; two seasonal ; unlined ; authorised capacity **65 cusecs**

7. (a) **Nature of investigations carried out up-to-date** Project sanctioned

   (b) **Actual or probable date of beginning of construction** April 1959

8. Probable date of beginning of operation End of 1962

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Aurangabad	
G.C.A.	12,000 acres
C.C.A.	9,600 „
Deduct existing well irrigation	200 „
Net C.C.A.	9,400 „

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonal	1,000 acres	10.7 percent
Paddy	800 „	8.5 „
Kharif	3,000 „	31.9 „
Rabi	3,000 „	31.9 „
Total	**7,800** „	**83.0** „

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity fatctor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	....	*inches*............		...... *T.M.C.*.......	
June	5.7	19.5	0.2	15th June to 14th Oct.	
July	6.4	22.7	0.6	0.40	0.58
August	5.4	16.4	Nil		
September	5.9	13.0	„		
October	1.8	7.2	„	15th Oct. to 14th Feb.	
November	1.0	8.6	„	0.28	0.41
December	0.4	2.7	„		
January	0.2	4.3	„		
February	0.1	2.8	„	15th Feb. to 14th June	
March	0.1	1.1	„	Nil	—
April	0.2	2.4	„		
May	0.4	11.0	„		
Total	**27.6**			**0.68**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent, silty loam to clay loam 35 percent and clay loam to clay 35 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonal*			*Kharif*						*Rabi*				
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*					*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Total cropped area (T. acres)*
Sugarcane	*Others*		*Cotton*	*Others*		*Jowar*	*Bajra*	*Pulses*	*Groundnut*	*Paddy*		*Wheat*	*Jowar*	*Others*		
0.7	1.3	0.2	16.8	1.6	1.7	20.5	17.4	23.5	6.0	2.2	6.7	5.3	1.6	3.1	1.0	9.6

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*			*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Others		*Paddy*	*Others*		*Others*		
12.8	1.0	10.4	38.4	3.8	38.4	3.0	7.8

(b) Are there any rules for regulating crop pattern ?

No ; but sanctions will be regulated so as to conform to the proposed crop pattern

16. Duty and Delta at distributary head (as anticipated)

	Duty (*acres per mean cusec*)		*Delta* (*feet*)		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonal	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Overall delta at canal head					2.0

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

108 wells, capable of irrigating about 2 acres per well; area excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

930 acres (culturable 710 acres, and waste land 220 acres)

24. Total cost of the scheme Rs. 50 lakhs

25. Financial return of the scheme 0.27 percent

26. Cost per acre irrigated Rs. 626

27. Not applicable

28. Main features and purpose of the scheme

Conversion of 7,800 acres of rain-fed cultivation to irrigated agriculture

JUI PROJECT

13C.1-G. 3-M.8

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

   Irrigation scheme; flow-cum-storage; C.C.A. 6,650 acres

3. **Source of supply**

   Jui at Danapur/Purna/**Godavari**
   Utilisation upstream : nil

4. **Description of the reservoir or tank**

Live storage	0.29 T.M.C.
Dead storage	0.03 ,,
Carry-over	Nil
Annual reservoir losses	0.14 T.M.C.
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	70 square miles
Area submerged	570 acres
Full reservoir level	R.L. 1,917
Minimum pond level	R.L. 1,898

5. **Description of the headworks**

   Dam : earthen, 2,700 feet long, 47 feet high
   Spillway : capacity 58,800 cusecs
   Outlets : two vents, 2 feet × 2.5 feet each and one foot diamter hume pipe

6. **Description of the canals**

   Jui Left Bank Canal (contour); 11 miles long; two-seasonal; unlined; authorised capacity **52 cusecs**

   Right Bank Outlet—capacity **5 cusecs**

7. **(a) Nature of investigations carried out up-to-date** Project sanctioned

   (b) Actual or probable date of beginning of construction October 1956

8. **Probable date of beginning of operation** End of 1962

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Aurangabad

	Left Bank Canal	*Right Bank Outlet*	*Total*
	..........*thousand acres*............		
G.C.A.	8.2	0.2	8.4
C.C.A.	6.5	0.2	6.7

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonal	500 acres	7.5 percent
Paddy	800 ,,	11.9 ,,
Kharif	1,600 ,,	23.9 ,,
Rabi	2,500 ,,	37.3 ,,
Total	**5,400** ,,	**80.6** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	............*inches*............			........*T.M.C.*........	
June	6.2	19.5	0.2		
July	7.2	22.7	0.6	15th June to 14th Oct.	
August	5.6	16.4	Nil	0.26	0.47
September	5.5	13.0	,,		
October	1.5	7.2	,,		
November	1.1	8.6	,,	15th Oct. to 14th Feb.	
December	0.2	2.7	,,	0.19	0.34
January	0.2	4.3	,,		
February	0.2	2.8	,,	15th Feb. to 14th June	
March	0.2	1.1	,,	Nil	—
April	0.2	2.4	,,		
May	0.4	11.0	,,		
Total	**28.5**			**0.45**	

12 Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent, silty loam to clay loam 35 percent and clay loam to clay 35 percent; soil depth more than 18 inches

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonal*			*Kharif*		
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*		
Sugarcane	*Others*		*Cotton*	*Others*		*Paddy*	*Jowar*	*Bajri*
0.5	0.7	0.1	22.5	1.2	1.6	0.6	23.2	13.2

Continued below

Continued from above

Kharif (continued)				*Rabi*			*Total cropped area (T. acres)*
Percentage of principal crops			*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Pulses	*Groundnut*	*Others*		*Wheat*	*Others*		
18.2	9.6	1.1	4.4	4.1	5.1	0.6	6.7

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*			*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Others		*Paddy*	*Others*		*Others*		
9.3	0.5	14.8	29.6	2.4	46.3	2.5	5.4

(b) Are there any rules for regulating crop pattern ?

No ; but sanctions will be regulated so as to conform to the proposed crop pattern

16. Duty and Delta at distributary head (as anticipated)

	Duty (*acres per mean cusec*)		*Delta* (*feet*)		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonal	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	..	1.2	1.2
Overall delta at canal head					1.9

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

About 66 wells of which 23 are for drinking water supply. The remaining wells are capable of only supplementing water for seasonal crops. The area under these wells is included in the command.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power; water supply (month wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Culturable area 420 acres; waste land 150 acres; entire submergence in Maharashtra

24. Total cost of the scheme	Rs. 34 lakhs
25. Financial return of the scheme	0.72 percent
26. Cost per acre irrigated	Rs. 630

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture (5,000 acres)

UPPER DUDHNA PROJECT

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

Irrigation scheme; flow-cum-storage; C.C.A. 11,300 acres

3. **Source of supply**

Dudhna at Somthana/**Godavari**
Utilisation upstream : nil

4. **Description of the reservoir or tank**

Live storage	0.46 T.M.C.
Dead storage	0.08 ,,
Carry-over	Nil
Annual reservoir losses	0.13 T.M.C.
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	95 square miles
Area submerged	780 acres
Full reservoir level	R.L. 1,779
Minimum pond level	R.L. 1,764

5. **Description of the headworks**

Dam : earthen, 7,600 feet long, 56 feet high

Spillway : 1,050 feet long, capacity 68,800 cusecs

Outlet : one vent, 4 feet × 5 feet, capacity 62 cusecs

6. **Description of the canal**

Upper Dudhna Canal (contour); right bank; 6 miles long; two-seasonal; unlined; capacity **62 cusecs**

7. **(a) Nature of investigations carried out up-to-date** Project sanctioned

(b) Actual or probable date of beginning of construction April 1959

8. **Probable date of beginning of operation** End of 1962

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Aurangabad

G.C.A.	14,600 acres
C.C.A.	11,700 ,,
Deduct area under wells	400 ,,
Net C.C.A.	11,300 ,,

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonal	1,000 acres	8.9 percent
Paddy	200 ,,	1.8 ,,
Kharif	3,000 ,,	26.5 ,,
Rabi	4,000 ,,	35.4 ,,
Total	**8,200** ,,	**72.6** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	..........*inches*..		....	......*T.M.C.*........	
June	6.6	16.7	0.6		
July	7.0	15.9	0.1	15th June to 14th Oct.	
August	5.6	12.7	0.3	0.28	0.43
September	5.5	22.6	Nil		
October	1.5	8.4	,,		
November	1.1	10.4	,,	15th Oct. to 14th Feb.	
December	0.4	6.9	,,	0.30	0.46
January	0.2	3.5	,,		
February	0.2	2.2	,,	15th Feb. to 14th June	
March	0.2	1.7	,,		
April	0.2	3.5	.	Nil	- -
May	0.5	3.6			
Total	**29.0**			0.58	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 25 percent, silty loam to clay loam 35 percent and clay loam to clay 40 percent. A soil depth of more than 18 inches is available.

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonal*			*Continued below*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Sugarcane	*Others*		*Cotton*	*Others*		
0.2	2.6	0.3	18.5	0.7	2.2	

Continued from above	*Kharif*							*Rabi*				
	Percentage of principal crops						*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Total cropped area (T. acres)*
	Paddy	*Jowar*	*Bajri*	*Pulses*	*Ground-nut*	*Others*		*Wheat*	*Jowar*	*Karad*		
	0.4	8.9	6.2	18.8	7.3	2.5	5.2	4.6	20.6	8.7	4.0	11.7

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*			*Rabi*		*Grand Total (T.acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Others		*Paddy*	*Others*		*Jowar*		
12.0	1.0	2.4	36.6	3.2	49.0	4.0	8.2

(b) Are there any rules for regulating crop pattern ?

No ; but sanctions will be regulated so as to conform to the proposed crop pattern

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)		*Delta (feet)*		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonal	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Overall delta at canal head					1.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

About 204 wells, capable of irrigating 2 acres per well. The area under the wells is excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects : financial returns

Nil

23. Extent and type of area submerged by reservoir

Culturable 620 acres, waste land 160 acres ; entire submergence lies in Maharashtra

24. Total cost of the scheme	Rs. 42 lakhs
25. Financial return of the scheme	1.49 percent
26. Cost per acre irrigated	Rs. 510

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

SUKHNA PROJECT

15C.1-G.3-M.10

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

Irrigation scheme ; flow-cum-storage ; C.C.A. 20,600 acres

3. **Source of supply**

Sukhna at Garkhed/Dudhna/Purna/**Godavari**
Utilisation upstream : nil

4. **Description of the reservoir or tank**

Live storage	0.66 T.M.C.
Dead storage	0.10 ,,
Carry-over	Nil
Annual reservoir losses	0.14 T.M.C.
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	116 square miles
Area submerged	1,580 acres
Full reservoir level	R.L. 1,781
Minimum pond level	R.L. 1,766

5. **Description of the head-works**

Dam : earthen, 11,100 feet long, 54 feet high
Spillway : 1,400 feet long, capacity 72,220 cusecs
Outlets : two vents, 3 feet × 3.5 feet each, total capacity 95 cusecs

6. **Description of the canal**

Sukhna Canal (contour) ; right bank ; 34 miles long ; two seasonal ; unlined ; authorised capacity **95 cusecs**

7. (a) **Nature of investigations carried out up-to-date** Project sanctioned

(b) **Actual or probable date of beginning of construction** April 1959

8. **Probable date of beginning of operation** End of 1962

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Aurangabad

G.C.A.	35,200 acres
C.C.A.	21,400 „
Deduct existing well irrigation	800 „
Net C.C.A.	20,600 „

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonal	1,000 acres	4.9 percent
Paddy	100 „	0.5 „
Kharif	4,000 „	19.4 „
Rabi	7,000 „	34.0 „
Total	**12,100** „	**58.8** „

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	inches			*T.M.C.*	
June	5.4	11.6	0.1		
July	5.0	13.6	0.9	15th June to 14th Oct. 0.34	0.34
August	5.3	12.6	0.1		
September	5.0	14.9	Nil		
October	1.8	8.9	„		
November	1.0	9.8	„	15th Oct. to 14th Feb. 0.51	0.50
December	0.3	4.5	„		
January	0.2	2.7	„		
February	0.2	2.0	„		
March	0.2	1.6	„	15th Feb. to 14th June Nil	—
April	0.2	1.9	„		
May	0.6	8.6	„		
Total	**25.2**			**0.85**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 30 percent, silty loam to clay loam 35 percent, and clay loam to clay 35 percent. A soil depth of more than 18 inches is available

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonal*			*Kharif*			*Continued below*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*			
Sugarcane	*Others*		*Cotton*	*Others*		*Paddy*	*Jowar*	*Bajri*	
0.2	1.8	0.4	16.8	7.7	5.2	0.2	9.1	6.2	

Continued from above	*Kharif*				*Rabi*				*Total cropped area (T. acres)*
	Percentage of principal crops			*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	
	Ground-nut	*Pulses*	*Others*		*Wheat*	*Jowar*	*Others*		
	7.7	15.0	2.8	8.8	5.0	20.0	7.5	7.0	21.4

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*			*Rabi*		*Groump Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Others		*Paddy*	*Others*		*Jowar*		
8.2	1.0	0.9	33.0	4.1	57.9	7.0	12.1

(b) Are there any rules for regulating crop pattern ?

No ; but sanctions will be regulated so as to conform to the proposed crop pattern

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)		*Delta (feet)*		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonal	130	140	1.8	1.7	3.5
Paddy	65	400	3.7	0.6	4.3
Kharif	200	--	1.2	—	1.2
Rabi	—	200	--	1.2	1.2
Overall delta at canal head					1.6

17. (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

(b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

About 387 wells, capable of irrigating about 2 acres per well. The area under wells will not receive irrigation waters.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

Nil

23. Extent and type of area submerged by reservoir

Culturable 950 acres, waste lands 630 acres ; entire submergance lies in Maharashtra

24. Total cost of the scheme	Rs. 76 lakhs
25. Financial return of the scheme	1.22 percent
26. Cost per acre irrigated	Rs. 628

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

TIRNA PROJECT

16C.1-G.4-M.11

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**

   Irrigation scheme ; flow-cum-storage ; C.C.A. 7,800 acres

3. **Source of supply**

   Tirna at Thair/Manjra/**Godavari**
   Utilisation upstream : nil

4. **Description of the reservoir or tank**

Live storage	0.30 T.M.C.
Dead storage	0.10 ,,
Carry-over	Nil
Annual reservoir losses	0.18 T.M.C.
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	161 squares miles
Area submerged	1,350 acres
Full reservoir level	R.L. 2,106
Minimum pond level	R.L. 2,098

5. **Description of the headworks**

Dam :	earthen, 5,400 feet long, 45 feet high
Spillway :	622 feet long, capacity 87,820 cusecs
Outlet :	3 feet diameter hume pipe

6. **Description of the canal**

   Tirna Canal (contour) ; right bank ; 19 miles long ; two-seasonal ; unlined ; authorised capacity **42 susecs**

7.	**(a) Nature of investigations carried out up-to-date**	Project sanctioned
	(b) Actual or probable date of beginning of construction	October 1957
8.	**Probable date of beginning of operation**	End of 1962

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District	Osmanabad
G.C.A.	9,500 acres
C.C.A.	8,000 ,,
Deduct existing well irrigation	200 ,,
Net C.C.A.	7,800 ,,

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Paddy	500 acres	6.4 percent
Kharif	1,300 ,,	16.7 ,,
Rabi	3,000 ,,	38.4 ,,
Total	**4,800** ,,	**61.5** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	............*inches*..................			........*T.M.C.*...........	
June	5.8	16.2	Nil		
July	5.7	18.7	,,		
August	5.4	18.2	,,	15th June to 14th Oct.	
September	7.7	18.1	,,	0.16	0.36
October	2.2	10.7	,,		
November	1.0	8.0	,,	15th Oct. to 14th Feb.	
December	0.3	2.7	,,	0.18	0.40
January	0.2	2.0	,,		
February	0.2	2.8	,,	15th Feb. to 14th June	
March	0.2	2.0	..	Nil	
April	0.4	5.2	..		
May	0.9	10.9			
Total	**30.0**			**0.34**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 20 percent, silty loam to clay loam 35 percent, and clay loam to clay 45 percent; soil depth of more than 18 inches available.

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonal*			
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Continued below*
Sugarcane	*Others*		*Cotton*	*Others*		
0.1	3.5	0.3	1.4	1.7	0.2	

Continued from above	*Kharif*						*Rabi*				*Total cropped area (T. acres)*
	Percentage of principal crops					*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	
	Paddy	*Jowar*	*Pulses*	*Ground-nut*	*Others*		*Wheat*	*Jowar*	*Others*		
	3.4	17.6	13.3	11.7	6.2	4.2	6.0	26.8	8.3	3.3	8.0

15. (a) Proposed pattern of irrigated cultivation

Kharif			*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Paddy	*Others*		*Jowar*		
10.4	27.0	1.8	62.6	3.0	4.8

(b) Are there any rules for regulating crop pattern ?

No ; but sanctions will be regulated so as to conform to the proposed crop pattern

16. Duty and Delta at distributary head (as anticipated)

	Duty (acres per mean cusec)		*Delta (feet)*		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Paddy	65	400	3.7	0.6	4.3
Kharif	200	—	1.2	—	1.2
Rabi	—	200	—	1.2	1.2
Overall delta at canal head					1.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

About 81 wells, can irrigate 2 acres per well. The area under wells is excluded from the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Culturable 1,020 acres, waste lands 330 acres. The entire area lies in Maharashtra

24. Total cost of the scheme	Rs. 27 lakhs
25. Financial return of the scheme	1.05 percent
26. Cost per acre irrigated	Rs. 563

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

MANAR PROJECT—STAGE I

17C.1-G.4-M.12

1. **Name of State** Maharashtra (formerly in Hyderabad)

2. **Scope of the scheme or system**
Irrigation scheme ; flow-cum-storage; C.C.A. 33,400 acres

3. **Source of supply**

Manar near Warwant/Manjra/**Godavari**
Utilisation upstream :
existing : nil
proposed : nil

4. **Description of the reservoir or tank**

Live storage	1.74 T.M.C.
Dead storage	0.65 ,,
Carry-over	0.30 ,,
Annual reservoir losses	1.00 ,,
Filling period	June to October
Depletion period	June to May
Catchment area	612 square miles
Area submerged	4,000 acres
Full reservoir level	R.L. 1,278
Minimum pond level	R.L. 1,265

5. **Description of the headworks**

Dam : earthen, 6,244 feet long, 80 feet high
Spillway : waste weir, 1,578 feet long, capacity 173,000 cusecs
Outlets : four vents, 4 feet × 8 feet each and two vents, 2 feet × 2 feet each

6. **Description of the canals**

Manar Left Bank Canal (contour); 45 miles long; perennial; unlined; authorised capacity **210 cusecs**

Manar Right Bank Canal (contour); 12 miles long; perennial; unlined; authorised capacity **42 cusecs**

7. (a) **Nature of investigations carried out up-to-date**	Project sanctioned
(b) **Actual or probable date of beginning of construction**	1958-59
8. **Probable date of beginning of operation**	1963-64

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Nanded

	Left Bank Canal	*Right Bank Canal*	*Total*
	thousand acres		
G.C.A.	32.3	4.9	37.2
C.C.A.	29.1	4.4	33.5
Deduct area irrigated by wells			0.1
Net C.C.A.			33.4

10. Area proposed to be irrigated annually and intensity of irrigation (both canals)

	Area proposed to be irrigated	*Intensity of irrigation*
Perennial	2,200 acress	6.6 percent
Two seasonal	5,400 ,,	16.1 ,,
Kharif	7,300 ,,	21.8 ,,
Rabi	8,300 ,,	24.8 ,,
Hot weather	1,800 ,,	5.4 ,,
Total	**25,000** ,,	**74.7** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*		*Capacity factor*	
	Normal	*Maximum*	*Minimum*	*Left Bank Canal*	*Right Bank Canal*	*Left Bank Canal*	*Right Bank Canal*
1	2	3	4	5	6	7	8
	inches			*T.M.C.*			
June	5.0	8.1	2.5	15th June to 14th Oct.			
July	12.4	21.1	5.2	1.34	0.20	0.61	0.45
August	12.0	21.4	4.5				
September	7.0	14.1	2.2				
October	2.5	3.4	1.6	15th Oct. to 14th Feb.			
November	Nil	Nil	Nil	1.04	0.12	0.47	0.27
December	,,	,,	,,				
January	,,	,,	,,				
February	0.6	2.5	,,	15th Feb. to 14th June			
March	0.8	2.0	0.3	0.61	0.06	0.28	0.14
April	0.6	1.0	Nil				
May	0.9	1.6	,,				
Total	**41.8**			**2.99**	**0.38**		
Total for both canals				**3.37**			

12. Not available

13. **(a) Characteristics of soils in the commanded area**

Light soils (sandy to sandy loam) 10 percent; medium soils (silty loam to clay loam) 30 percent; and deep soils (clay loam to clay) 60 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial			*Two seasonal*					*Continued below*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	
Sugarcane	*Others*		*Chillies*	*Cotton*	*Ground-nut*	*Others*		
0.3	Neligible	0.1	6.7	19.1	5.8	2.3	11.4	

Continued from above	*Kharif*					*Rabi*				*Total cropped area (T. acres)*
	Percentage of principal crops				*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	
	Paddy	*Jowar*	*Pulses*	*Others*		*Wheat*	*Jowar*	*Ground-nut*		
	2.0	23.0	19.4	1.0	15.2	2.9	10.0	7.5	6.8	33.5

15. (a) Proposed pattern of irrigated cultivation

Perennial			*Two seasonal*			*Continued below*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Sugarcane	*Others*		*Cotton*	*Others*		
6.0	2.7	2.2	12.0	9.6	5.4	

Continued from above	*Kharif*			*Rabi*		*Hot weather*		*Grand Total (T. acres)*
	Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
	Paddy	*Others*		*Jowar*		*Fodder*		
	8.9	20.3	7.3	33.2	8.3	7.2	1.8	25.0

(b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated so as to conform to the proposed crop pattern.

16. Duty and Delta at distributory head (as anticipated)

	Duty (*acres per mean cusec*)			*Delta* (*feet*)			
	Kharif	*Rabi*	*Hot weather*	*Kharif*	*Rabi*	*Hot weather*	*Total*
Sugarcane	60	70	50	4.0	3.4	4.8	12.2
Other perennial	90	105	75	2.7	2.4	3.2	8.3
Cotton	180	210	150	1.4	1.1	1.6	4.1
Two seasonal	120	140	—	2.0	1.7	—	3.7
Kharif	180	—	—	1.4	—	—	1.4
Paddy	80	—	—	3.1	—	—	3.1
Rabi	—	210	—	—	1.1	—	1.1
Hot weather	—	—	150	—	—	1.6	1.6
Overall Delta at canal head							3.1

17. (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**

Nil

(b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**

50 wells, each capable of irrigating 2 acres of seasonal crop. Area under wells is excluded from the C.C.A.

18. **Quantum of river supplies available in relation to withdrawals**

River supply data not available

19. to 21. Not applicable

GENERAL

22. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**

Nil

23. **Extent and type of area submerged by reservoir**

4,000 acres (cultivable 3,400 acres and government waste land 600 acres) all in Maharashtra

24. **Total cost of the scheme** Rs. 1,99 lakhs

25. Not available

26. **Cost per acre irrigated** Rs. 795

27. Not applicable

28. **Main features and purpose of the scheme**

Conversion of rain-fed cultivation to irrigated agriculture

BOR PROJECT

18C.1 G.8-M.13

1. **Name of State** Maharashtra (formerly in Madhya Pradesh)

2. **Scope of the scheme or system**

   Irrigation scheme; flow-cum-storage; C.C.A. 57,900 acres

3. **Source of supply**

   Bor at Silu/Wardha/**Godavari**

   Utilisation upstream : nil

4. **Description of the reservoir or tank**

Live storage	5.2 T.M.C.
Dead storage	0.4 ,,
Carry-over	2.0 ,,
Annual reservoir losses	0.7 ,,
Filling period	June to September
Depletion period	June to May
Catchment area	147 square miles
Area submerged	3,800 acres
Full reservoir level	R. L. 1,089
Minimum pond level	R. L. 1,027

5. **Description of the headworks**

   Dam : earthern, 3,750 feet long, 117 feet high

   Spillway : 10 gates, 30 feet × 20 feet each, total capacity 84,000 cusecs

   Outlet : One conduit, 8 feet × 5 feet

6. **Description of the canal**

   Bor Canal (contour); left bank; 14 miles long; perennial; lined; authorised capacity **400 cusecs**

7. **(a) Nature of investigations carried out up-to-date** Project sanctioned

   (b) Actual or probable date of beginning of construction 1957-58

8. **Probable date of beginning of operation** 1963-64

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Wardha

G.C.A.	80,500 acres
C.C.A.	59,400 ,,
Deduct area under wells	1,500 ,,
Net C.C.A.	57,900 ,,

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Perennial	1,000 acres	1.7 percent
Kharif	8,200 ,,	14.2 ,,
Rabi	19,600 ,,	33.9 ,,
Long Staple Cotton	13,000 ,,	22.4 ,,
Hot weather	800 ,,	1.4 ,,
Total	**42,600** ,,	**73.6** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	....................*inches*....................			....*T.M.C.*....	
June	5.3	11.0	1.7	0.17	0.16
July	12.3	20.3	6.7	Nil	—
August	10.6	16.4	3.2	,,	—
September	6.6	12.7	1.3	0.68	0.66
October	1.7	4.6	Nil	0.36	0.34
November	1.2	4.9	,,	0.56	0.54
December	0.2	0.9	,,	0.36	0.34
January	1.2	4.7	,,	0.36	0.34
February	0.8	3.4	,,	0.04	0.04
March	0.5	2.1	,,	0.04	0.04
April	0.8	3.6	,,	0.64	0.62
May	0.5	1.8	,,	0.65	0.63
Total	**41.7**			**3.86**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 12 percent, silty loam to clayey loam 66 percent and clayey loam to clay 22 percent

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Perennial		*Two seasonal*				
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Continued below*
Perennial		*Cotton*	*Tur*	*Others*		
0.3	0.2	40.2	6.9	1.9	29.0	

	Kharif				*Rabi*				
Continued from above	*Percentage of principal crops*			*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Total Cropped area (T. acres)*
	Paddy	*Jowar*	*Others*		*Wheat*	*Gram*	*Oil seeds*		
	0.2	33.8	5.3	23.4	8.0	0.6	2.7	6.8	59.4

15. (a) Proposed pattern of irrigated cultivation

Perennial		*Two seasonal*		*Kharif*		
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Continued below*
Others		*Cotton long staple*		*Paddy*		
2.4	1.0	30.5	13.0	19.2	8.2	

	Rabi			*Hot weather*		
Continued from above	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Grand Total (T. acres)*
	Wheat	*Gram*		*Others*		
	26.8	19.2	19.6	1.9	0.8	42.6

(b) Are there any rules for regulating crop pattern ?

No, but sanctions will be regulated so as to conform to the proposed crop pattern

16. Duty and Delta at canal head (as anticipated)

	Duty (acres per mean cusec)			*Delta (feet)*			
	Kharif	*Rabi*	*Hot weather*	*Kharif*	*Rabi*	*Hot weather*	*Total*
Perennial	200	100	75	1.2	2.4	3.2	6.8
Paddy	200	400	—	1.2	0.6	—	1.8
Gram	—	400	—	—	0.6	—	0.6
Long staple cotton	400	—	100	0.6	—	2.4	3.0
Wheat	—	150	—	—	1.6	—	1.6
Hot weather	—	—	100	—	—	2.4	2.4
Overall delta at canal head							2.1

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

763 wells in the commanded area, each capable of irrigating about 2 acres of seasonal crops; the area under wells is not included in the C.C.A.

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Extent and type of area submerged by reservoir

Government waste land 530 acres; culturable land 2,830 acres and garden land 440 acres the entire submergence lies in Maharashtra

24. Total cost of the scheme	Rs. 2,20 lakhs
25. Financial return of the scheme	3.02 percent
26. Cost per acre irrigated	Rs. 502

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

EKBURJEE PROJECT

19C.1-G.7-M.14

1. **Name of State** Maharashtra (formerly in Madhya Pradesh)

2. **Scope of the scheme or system**

Irrigation scheme; flow-cum-storage; C.C.A. 7,500 acres

3. **Source of supply**

Chandrabhaga at Kektumra (Ekburjee)/Penganga/Wardha Pranhita/**Godavari**

Utilisation upstream : nil

4. **Description of the reservoir or tank**

Live storage	0.42 T.M.C.
Dead storage	0.07 ,,
Carry-over	Nil
Annual reservoir losses	0.09 T.M.C.
Filling period	15th June to end of September
Depletion period	15th June to 14th February
Catchment area	29 square miles
Area submerged	540 acres
Full reservoir level	R.L. 499 (arbitrary datum)
Minimum pond level	R.L. 470 (arbitrary datum)

5. **Description of the headworks**

Dam : earthen, 2,500 feet long, 80 feet high

Spillway : 456 feet long, capacity 35,560 cusecs

Outlets : head regulators on both flanks, capacity 70 cusecs each

6. **Description of the canals**

Ekburjee Left Bank Canal (contour); 10 miles long; two-seasonal; unlined; authorised capacity **45 cusecs**

Ekburjee Right Bank Canal (contour); 13 miles long; two-seasonal; unlined; authorised capacity **70 cusecs**

7. **(a) Nature of investigations carried out up-to-date** Project sanctioned

(b) Actual or probable date of beginning of construction 1959-60

8. **Probable date of beginning of operation** March 1964

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Akola

	Left Bank Canal	*Right Bank Canal*	*Total*
	..............*thousand acres*................		
G.C.A.	3.8	6.2	10. 0
C.C.A.	2.9	4.6	7.5

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Cotton	2,300 acres	30.7 per cent
Paddy	400 ,,	5.3 ,,
Kharif	1,400 ,,	18.7 ,,
Rabi	1,300 ,,	17.3 ,,
Total	**5,400** ,,	**72.0** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	..............*inches*.	....		........*T.M.C*...........	
June	6.3	24.1	0.9		
July	9.5	19.7	2.2	15th June to 14th Oct.	
August	7.8	16.0	1.2	0.18	0.15
September	5.7	19.2	0.1		
October	1.7	7.4	Nil		
November	0.8	5.4	,,	15th Oct. to 14th Feb.	
December	0.4	2.5	,,	0.35	0.29
January	0.3	2.7	,,		
February	0.4	3.0	,,		
March	0.2	2.2	,,	15th Feb. to 14th June	
April	0.4	6.0	,,	Nil	
May	0.6	2.4	,,		
Total	**34.1**			**0.53**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 10 percent; silt loam to clay loam 40 percent and clay loam to clay 50 percent, scientific soil surveys not carried out

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Two seasonal			*Kharif*					*Rabi*			*Total cropped area (T. acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Cotton	*Others*		*Paddy*	*Jowar*	*Ground-nut*	*Pulses etc.*		*Wheat*	*Others*		
32.0	0.4	2.4	3.0	30.6	4.5	16.9	4.2	10.1	2.5	0.9	7.5

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*			*Rabi*			*Grand Total (T. acres)*
Percentage of principal crops	*Total area T.) acres)*	*Percentage of principal crops*		*Total area (T. acres)*	*Percentage of principal crops*		*Total area T. acres)*	
Cotton		*Paddy*	*Others*		*Jowar*	*Wheat*		
42.6	2.3	7.4	26.0	1.8	16.6	7.4	1.3	5.4

(b) Are there any rules for regulating crop pattern ?

No; but sanctions will be regulated so as to conform to the proposed crop pattern

16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)			*Delta (feet)*			
	Kharif	*Rabi*	*Hot weather*	*Kharif*	*Rabi*	*Hot weather*	*Total*
Cotton	400	—	100	0.6	—	2.4	3.0
Paddy	65	400	—	3.7	0.6	—	4.3
Kharif	300	—	—	—	0.8	—	0.8
Wheat	—	150	—	—	1.6	—	1.6
Jowar	—	200	—	—	1.2	—	1.2
Overall Delta at canal head							2.3

17. (a) **Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**
Nil

(b) **Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom**
About 10 wells, used for water supply

18. **Quantum of river supplies available in relation to withdrawals**
River supply data not available

19. to 21. Not applicable

GENERAL

22. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns**
Nil

23. **Extent and type of area submerged by reservoir**
Culturable land : 330 acres,
Forest land : 110 acres,
Other Govt. Waste land 100 acres
The entire submerged area in Maharashtra

24. **Total cost of the scheme** Rs.43 lakhs

25. **Financial return of the scheme** 2.34 percent

26. **Cost per acre irrigated** Rs. 800

27. Not applicable

28. **Main features and purpose of the scheme**
Conversion of rain-fed cultivation to irrigated agriculture

PANDHARABODI TANK

20C.1-G.9-M.15

1. **Name of State** Maharashtra (formerly in Madhya Pradesh)

2. **Scope of the scheme or system**
   Irrigation scheme: flow-cum-storage; C.C.A. 5,600 acres

3. **Source of supply**
   Tributary of Amb river near Pandharabodi/Wainganga/Pranhita/**Godavari**
   Utilisation upstream : nil

4. **Description of the reservoir or tank**

Live storage	0.46 T.M.C.
Dead storage	0.03 ,,
Carry-over	Nil
Annual reservoir losses	0.10 T.M.C.
Filling period	15th June to September
Depletion period	15th June to 14th February
Catchment area	17 square miles
Area submerged	781 acres
Full reservoir level	R.L. 186 (arbitrary datum)
Minimum pond level	R.L. 162 (—do—)

5. **Description of the headworks**

Dam :	earthen. 3,475 feet long main bund and 2,135 feet long subsidiary bund, maximum height of the earthen dam above river bed 50 feet
Spillway :	350 feet long, capacity 15,260 cusecs
Outlets :	head regulators on both banks; total capacity 60 cusecs

6. **Description of the canals**

Pandharabodi Left Bank Canal (contour): 9½ miles long; two seasonal; unlined; authorised capacity **33 cusecs**

Pandharabodi Right Bank Canal (contour): 12½ miles long; two seasonal; unlined; authorised capacity **27 cusecs**

7. **(a) Nature of investigations carried out up-to-date** Project sanctioned
   (b) Actual or probable date of beginning of construction 1958-59

8. **Probable date of beginning of operation** 1963-64

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Nagpur	*Left Bank Canal*	*Right Bank Canal*	*Total*
	........*thousand acres*............		
G.C.A.	3.8	3.7	7.5
C.C.A.	3.0	2.6	5.6

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Two seasonal	300 acres	5.4 percent
Paddy	800 ,,	14.3 ,,
Rabi	3,600 ,,	64.3 ,,
Total	**4,700** ,,	**84.0** ,,

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	..............*inches*..............			........*T.M.C.*.........	
June	8.2	23.6	1.1		
July	14.0	29.5	5.5	15th June to 14th Oct.	
August	12.1	35.5	2.8	0.06	0.09
September	8.6	22.2	1.5		
October	2.3	12.4	Nil		
November	0.5	4.7	,,	15th Oct. to 14th Feb.	
December	0.4	5.9	,,	0.29	0.45
January	0.5	3.7	,,		
February	0.5	3.8	,,	15th Feb. to 14th June	
March	0.5	5.0	,,	Nil	—
April	0.5	4.4	,,		
May	0.5	4.0	,,		
Total	**48.6**			**0.35**	

12. Not available

12. Not available

13. (a) Characteristics of soils in the commanded area

Sandy to sandy loam 18 percent; silty loam to clay loam 55 percent and clay loam to clay 27 percent

(b) Has any study been made of the likely effect of the introduction on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Two seasonal			*Kharif*				*Rabi*				*Total cropped area (T. acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	
Chillies	*Others*		*Paddy*	*Jowar*	*Pulses*		*Wheat*	*Jowar*	*Gram oil seeds*		
8.9	4.3	0.7	5.9	11.6	11.1	1.6	20.7	20.9	16.6	3.3	5.6

Note : *These figures are based on statistics for* 1957-58 *given in Maharashtra Krishigivan, published by Gokhale Institute of Economics Poona*

15. (a) Proposed pattern of irrigated cultivation

Two seasonal		*Kharif*		*Rabi*			*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	*Percentage of principal crops*		*Total area (T. acres)*	
Chillies		*Paddy*		*Wheat*	*Jowar*		
5.9	0.3	17.8	0.8	35.8	40.5	3.6	4.7

(b) Are there any rules for regulating crop pattern ?

No; but sanctions will be regulated so as to conform the proposed crop pattern

16. Duty and Delta at distributory head (as anticipated)

	Duty (acres per mean cusec)		*Delta (feet)*		
	Kharif	*Rabi*	*Kharif*	*Rabi*	*Total*
Two seasonal	300	130	0.8	1.9	2.7
Paddy	200	400	1.2	0.6	1.8
Wheat	—	150	—	1.6	1.6
Jowar	—	200	—	1.2	1.2
Overall delta at canal head					1.7

17. **(a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom**
Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom
About 8 wells, used for drinking water supply

18. **Quantum of river supplies available in relation to withdrawals**
River supply data not available

19. to 21. Not applicable

GENERAL

22. **Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial return**
Water supply to Umrer town 0.10 T.M.C.

23. **Extent and type of area submerged by reservoir**
Culturable area 890 acres, forest 130 acres, waste area 200 acres; entire submerged area in Maharashtra

24. **Total cost of the scheme**	Rs. 38 lakhs
25. **Financial return of the scheme**	1.03 percent
26. **Cost per acre irrigated**	Rs. 801

27. Not applicable

28. **Main features and purpose of the scheme**
Conversion of rain-fed cultivation to irrigated agriculture

IMPROVEMENT TO NAVEGAON TANK

21C.1-G.9-M.16

1. **Name of State** Maharashtra (formerly in Madhya Pradesh)

2. **Scope of the scheme or system**

Irrigation; flow-cum-storage; Additional C.C.A. 1,900 acres

3. **Source of supply**

Nalla/Chulbund river/Wainganga/**Godavari**

4. **Description of the reservoir or tank**

Live storage	1.05 T.M.C.
Dead storage	0.40 ,,
Carry-over	Nil
Annual reservoir losses	0.35 T.M.C.
Filling period	15th June to 30th September
Depletion period	15th June to 14th February
Catchment area	22 square miles
Area submerged	2,400 acres
Full reservoir level	R.L. 910
Dead storage level	R.L. 898

5. **Description of the headworks**

Dam : earthen, 2,050 feet long with a subsidiary bund 285 feet long; 39 feet high

Spillway : 220 feet long, capacity 4,358 cusecs

Outlet : capacity 212 cusecs

6. **Description of the canal**

Navegaon Canal; 4.04 miles long; two-seasonal; unlined; authorised capacity **212 cusecs**

7. **(a) Nature of investigations carried out up-to-date** Project sanctioned

(b) Actual or probable date of beginning or construction November 1954

8. **Probable date of beginning of operation** End of 1963

IRRIGATION ASPECTS

9. Gross commanded area and culturable commanded area, district-wise

District Bhandara

G.C.A.	23,000 acres
C.C.A.	19,000 „
Deduct C.C.A. under Navegaon Bandh (Item 13 of Bhandara district, Table II of Annexure VIII)	17,100 „
Additional C.C.A.	1,900 „

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation*
Kharif	12,000 acres	63.0 percent
Rabi	1,500 „	8.0 „
Total	13,500 „	71.0 „
Deduct area irrigated under Navegaon Bundh	1,600 „	
Additional irrigation	11,900 „	

11. Normal rainfall and river supply proposed to be diverted

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	..........*inches*.........			........*T.M.C.*..........	
June	8.0	16.0	4.0	15th June to 14th Oct.	
July	22.0	36.0	9.0	0.73	0.33
August	18.0	29.0	9.0		
September	9.0	18.0	2.0		
October	2.0	9.0	1.0		
November	0.8	3.0	Nil	15th Oct. to 14th Feb.	
December	Nil	Nil	„	0.21	0.09
January	„	„	„		
February	0.5	6.0	„		
March	0.5	3.0	0.1	15th Feb. to 14th June	
April	0.3	5.0	Nil	Nil	—
May	0.5	3.0	0.1		
Total	**61.6**			**0.94**	
Deduct diversion under Navegaon Bundh				0.08	
Additional diversion				**0.86**	

12. Not available

13. (a) Characteristics of soils in the commanded area

Top five feet clay, 5 to 8 feet *murum*, 8 to 9 feet boulders, below 9 feet rock

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Kharif			*Rabi*				*Total cropped area (T. acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*			*Total area (T. acres)*	
Paddy	*Others*		*Linseed*	*Wheat*	*Others*		
62.0	6.0	12.9	14.0	3.0	15.0	6.1	19.0

15. (a) Proposed pattern of irrigated cultivation

Kharif		*Rabi*		*Grand Total (T. acres)*
Percentage of principal crops	*Total area (T. acres)*	*Percentage of principal crops*	*Total area (T. acres)*	
Paddy		*Wheat*		
90.0	12.0	10.0	1.5	13.5

(b) Are there any rules for regulating crop pattern ? No

16. Duty and Delta at canal head (as anticipated)

Duty (acres per mean cusec)		*Delta (feet)*		
Kharif (Paddy)	*Rabi*	*Kharif (Paddy)*	*Rabi*	*Overall*
174	77	1.4	3.2	1.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. Aspects other than irrigation and power; water supply (month-wise), if any, required for these aspects; financial returns

Nil

23. Not available

24. Total cost of the scheme Rs. 28 lakhs

25. Not available

26. Cost per acre irrigated Rs. 211

27. Not applicable

28. Main features and purpose of the scheme

Conversion of rain-fed cultivation to irrigated agriculture

UMERKOTE PROJECT

22C.1-G.11-O.1

1. **Name of State** Orissa

2. **Scope of the scheme or system**
Irrigation scheme ; flow-cum-storage, Ayacut 13,750 acres

3. **Source of supply**
Bhaskel at Umerkote/Indravati/**Godavari**
Utilisation upstream :
existing : nil
proposed : nil

4. **Description of the reservoir or tank**

Live storage	0.98 T.M.C.
Dead storage	0.08 „
Carry-over	0.10 „
Annual reservoir losses	0.19 „
Filling period	July to Oct.
Depletion period	Nov. to June
Catchment area	34 square miles
Area sumerged	1,300 acres
Full reservoir level	R.L. 2,057
Minimum pond level	R.L. 2,029

5. **Description of the headworks**
Dam : earthen, 5,200 feet long, 74 feet high
Spillway : 1,420 feet long, capacity 20,000 cusecs
Outlets : not yet determined

6. **Description of the canals**
Umerkote Right Bank Canal (contour) ; perennial ; unlined ; authorised capacity **45 cusecs**
Umerkote Left Bank Canal (contour) ; perennial ; unlined ; authorised capacity **85 cusecs**
(Length of both canals ; 25 miles)

7. (a) **Nature of investigations carried out up-to-date**
Topographical and hydrological surveys completed. Soil surveys and geological investigations are being carried out

(b) **Actual or probable date of beginning of construction** 1960-61

8. **Probable date of beginning of operation** 1964-65

IRRIGATION ASPECTS

9. Gross commanded area, culturable commanded area and Ayacut, district-wise

District Koraput	*Left Bank Canal*	*Right Bank Canal*	*Total*
	thousand acres		
G.C.A.	8.3	16.7	25.0
C.C.A.	4.6	9.2	13.8
Ayacut	4.6	9.2	13.8

10. Area proposed to be irrigated annually and intensity of irrigation

	Area proposed to be irrigated	*Intensity of irrigation on Ayacut*
Perennial	2,100 acres	15 percent
Kharif	11,700 ,,	85 ,,
Rabi	4,800 ,,	35 ,,
Total	**18,600** ,,	**135** ,,

11. Normal rainfall and river supply proposed to be diverted (*both canals*)

Month	*Rainfall*			*River supply proposed to be diverted*	*Capacity factor*
	Normal	*Maximum*	*Minimum*		
1	2	3	4	5	6
	inches			*T.M.C.*	
June	7.4	12.7	4.2	0.05	0.15
July	16.4	24.9	7.0	0.10	0.29
August	16.4	23.5	10.8	0.10	0.29
September	11.8	26.5	3.8	0.09	0.27
October	3.7	13.2	0.1	0.19	0.55
November	0.8	4.4	Nil	0.19	0.56
December	0.1	1.3	,,	0.11	0.32
January	0.3	1.0	,,	0.11	0.32
February	0.4	1.8	,,	0.11	0.35
March	0.8	4.1	,,	0.11	0.32
April	1.8	7.5	0.4	0.09	0.27
May	2.0	6.3	0.2	0.07	0.20
Total	**61.9**			**1.32**	

12. Not available

13. (a) Characteristics of soils in the commanded area Mostly black cotton soil

(b) Has any study been made of the likely effect of the introduction of irrigation on soil characteristics ?

No

14. Existing pattern of cultivation in the area proposed to be irrigated

Undeveloped area, requiring clearance of forests and levelling

15. (a) Proposed pattern of irrigated cultivation

Perennial			*Kharif*					*Rabi*					*Grand Total (T. acres)*
Percentage of principal crops		*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	*Percentage of principal crops*				*Total area (T. acres)*	
Sugarcane	*Garden*		*Paddy*	*Lesser millets*	*Oil-seeds*	*Ground-nut*		*Wheat*	*Paddy*	*Pulses*	*Others*		
3.6	7.7	2.1	44.5	7.4	7.4	3.6	11.7	11.0	3.7	7.4	3.7	4.8	18.6

(b) Are there any rules for regulating crop pattern ? No

16. Delta at canal head (as anticipated)

Delta (feet)								
Perennial		*Kharif*		*Rabi*				*Overall*
Garden	*Sugarcane*	*Paddy*	*Others*	*Wheat*	*Dalua*	*Pulses*	*Others*	
2.6	7.1	2.3	0.4	1.6	3.8	0.7	0.6	1.6

17. (a) Number of tanks in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

(b) Number of wells in operation in the area proposed to be irrigated and the area irrigated therefrom

Nil

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19. to 21. Not applicable

GENERAL

22. **Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects financial returns**

Nil

23. **Extent and type of area submerged by reservoir**

1,300 acres (waste lands) all in Orissa

24.	**Total cost of the scheme**	Rs. 1,00 lakhs
25.	**Financial return of the scheme**	3.47 percent
26.	**Cost per acre irrigated**	Rs. 538

27. Not applicable

28. **Main features and purpose of the scheme**

Part of Dandakarnya development ; reclamation of forest lands into agricultural lands ; settlement of displaced persons

MANJRA WATER SUPPLY SCHEME 23C.1-G.4-A.4

1. **Name of State** Andhra Pradesh (formerly in Hyderabad)

2. **Scope of the scheme or system**
   Flow-cum-storage ; water supply to Hyderabad City

3. **Source of supply**
   Manjra at Sangareddy/**Godavari**

4. **Description of the reservoir or tank**

Live storage	1.46 T.M.C.
Dead storage	0.34 ,,
Carry-over	Nil
Annual reservoir losses	0.52 T.M.C.
Filling period	June to November
Depletion period	December to May
Catchment area	6,470 square miles
Area submerged	3,030 acres
Full reservoir level	R.L. 1,647
Minimum pond level	R.L. 1,620

5. **Description of the headworks**

Dam :	with earthen flanks, 7,382 feet long
Spillway :	ogee with 12 gates, 40 feet × 20.75 feet each and 1,028 feet long broad crested weir, combined capacity of spillway 400,000 cusecs
Outlets :	two vents of 8 feet × 5 feet, total capacity 1,200 cusecs

6. **Description of the canal**
   Water pumped from a suction well and conveyed through 4 feet diameter pipe on the right flank

7.	(a) **Nature of investigations carried out up-to-date**	Investigations completed
	(b) **Actual or probable date of beginning of construction**	1960
8.	**Probable date of beginning of operation**	1964
9.-10.	Not applicable	
11.	**River supply proposed to be diverted**	2.45 T.M.C. annually

12.-17. Not applicable

18. Quantum of river supplies available in relation to withdrawals

River supply data not available

19.-21. Not applicable

GENERAL

22. Aspects other than irrigation and power ; water supply (month-wise), if any, required for these aspects ; financial returns

A water supply scheme

23. Extent and type of area submerged by reservoir 3,030 acres

24. Total cost of the scheme Rs. 4,10 lakhs

25. Not available

26.-27. Not applicable

28. Main features and purpose of the scheme

Drinking water for the city of Hyderabad, outside the Godavari drainage basin

TABLE I

Abstract of major and medium schemes

Index number	*Name of scheme or project*	*Power installed kW.*	*C.C.A. or Ayacut (acres)*	*Proposed annual irrigation (acres)*	*Proposed annual diversion (T.M.C.)*
1	2	3	4	5	6
ANDHRA PRADESH			*Ayacut*		
1C. 1-G. 10-A. 1	Torrigedda Pumping Scheme	—	15,400	15,400	2.4
2C. 1-G. 5-A. 2	Swarna Project	—	7,000	9,100	1.7
3C. 1-G. 12-A. 3	Upper Sileru Hydro-Electric Project-Stage I	120,000	—	—	*56.8*
	Total	**120,000**	**22,400**	**24,500**	**4.1** *56.8*
MADHYA PRADESH			*C.C.A.*		
4C. 1-G. 9-Ma. 1	Kharadi Project	—	12,400	10,000	0.8
5C. 1-G. 9-Ma. 2	Nehlesara Project	—	13,200	10,800	0.8
	Total	—	**25,600**	**20,800**	**1.6**

TABLE I *(continued)*

Abstract of major and medium schemes

Index number	*Name of scheme or project*	*Power installed kW.*	*C.C.A. or Ayacut (acres)*	*Proposed annual irrigation (acres)*	*Proposed annual diversion (T.M.C.)*
1	2	3	4	5	6
			C.C.A.		
MAHARASHTRA					
6C. 1-G. 2-M. 1	Mula Project	—	298,200	231,400	31.8
7C. 1-G. 1-M. 2	Dheku Project	—	7,900	5,900	0.5
8C. 1-G. 1-M. 3	Galhati Project	—	17,800	9,900	0.8
9C. 1-G. 1-M. 4	Sindphana Project	—	8,200	6,500	0.5
10C. 1-G. 1-M. 5	Wan Project	—	18,500	12,000	1.0
11C. 1-G. 3-M. 6	Purna Project	15,000	235,200	152,000	28.1
12C. 1-G. 3-M. 7	Khelna Project	—	9,400	7,800	0.7
13C. 1-G. 3-M. 8	Jui Project	—	6,700	5,400	0.5
14C. 1-G. 3-M. 9	Upper Dudhna Project	—	11,300	8,200	0.6
15C. 1-G. 3-M. 10	Sukhna Project	—	20,600	12,100	0.9
16C. 1-G. 4-M. 11	Tirna Project	—	7,800	4,800	0.3
17C. 1-G. 4-M. 12	Manar Project—Stage I	—	33,400	25,000	3.4
18C. 1-G. 8-M. 13	Bor Project	—	57,900	42,600	3.9
19C. 1-G. 7-M. 14	Ekburjee Project	—	7,500	5,400	0.5
20C. 1-G. 9-M. 15	Pandharabodi tank	—	5,600	4,700	0.4
21C. 1-G. 9-M. 16	Improvement to Navegaon tank	—	1,900	11,900	0.9
	Total	**15,000**	**747,900**	**545,600**	**74.8**
MYSORE					
	Nil		*Ayacut*		
ORISSA					
22C. 1-G. 11-O. 1	Umerkote Project	—	13,800	18,600	1.3
	Grand Total	**135,000**	**809,700**	**609,500**	**81.8** ***56.8***

WATER SUPPLY SCHEME

ANDHRA PRADESH					
23C. 1-G. 4-A. 4	Manjra Water Supply Scheme	—	—	—	2.5

Note : Figures in italics in Column 6 represent diversion for Power generation only.

TABLE II

Particulars of minor schemes

Serial number	Name of scheme	Name of sub-basin	Capacity of tanks (M.C ft.)	Capacity of diversion schemes (cusecs)	C.C.A. or Ayacut (acres)	Area proposed to be irrigated (acres)
1	2	3	4	5	6	7
	ANDHRA PRADESH				*Ayacut*	
	Adilabad district					
1.	Sirala	G.5 Middle Godavari	205	- -	3,000	3,000
	Karimnagar district					
1.	Kesevapatnamvagu	G.6 Maner	179	—	2,200	2,200
2.	Ganganala anicut	G.5 Middle Godavari	—	70	2,100	4,200
	Total				**4,300**	**6,400**
	Khammam district					
1.	Maddirala anicut	G.10 Lower Godavari	—	25	1,000	1,000
	Nizamabad district					
1.	Ramadugu	G.5 Middle Godavari	637	—	3,900	4,800
	Warangal district					
1.	Salivagu	G.6 Maner	572	—	2,850	2,850
	Total for Andhra Pradesh				**15,050**	**18,050**
	MADHYA PRADESH				*C.C.A.*	
	Balaghat district					
1.	Seoni Sagar tank	G.9. Pranhita	20	—	520	400
2.	Alitola Regulator	,,	- -	7	700	500
	Total		**20**	**7**	**1,220**	**900**
	Seoni district					
1.	Rampuri regulator	G.9 Pranhita	—	5	520	326
2.	Pithora tank	,,	26	·	575	407
	Total		**26**	**5**	**1,095**	**733**
	Total for Madhya Pradesh				**2,315**	**1,633**

TABLE II (*continued*)

Particulars of minor schemes

Serial number	*Name of scheme*	*Name of sub-basin*	*Capacity of tanks (M.C ft.)*	*Capacity of diversion schemes (cusecs)*	*C.C.A. or Ayacut (acres)*	*Area proposed to be irrigated (acres)*
1	2	3	4	5	6	7
	MAHARASHTRA				*C.C.A.*	
	Ahmednagar district					
1.	Percolation tank at Chincloli Gurao	G.2 Pravara	34	9	600	512
	Amravati district					
1.	Bandhara at Palaskhed	G.8 Wardha	—	14	1,600	1,035
	Aurangabad district					
1.	Kham anicut	G.1 Upper Godavari	—	7	1,800	1,200
2.	Yerabhadra anicut	,,	—	7	3,700	1,000
3.	Kaslar tank	,,	63	—	1,800	1,200
4.	Dawargaon tank	,,	61	—	2,500	1,200
5.	Jivrakha Project	G.3 Purna	217	—	8,300	4,800
	Total				**18,100**	**9,400**
	Bhandara district					
1.	Rawanwadi tank	G.9 Pranhita	238	—	8,262	2,600
2.	Amgaon tank	,,	31	—	1,254	748
3.	Risala feeder tank	,,	224	—	9,600	3,650
4.	Hari tank	,,	41	—	1,574	817
	Total				**20,690**	**7,815**
	Bhir					
1.	Dambri anicut	G.1 Upper Godavari	—	13	1,400	1,000
2.	Wangarwadi tank	,,	102	—	3,000	1,950
3.	Mohesanghvi Project	G.4 Manjra	208	—	7,800	4,800
	Total				**12,200**	**7,750**
	Nagpur district					
1.	Saighat tank	G.9 Pranhita	110	—	1,472	830
2.	Khursapur tank	,,	157	—	2,050	1,640
	Total				**3,522**	**2,470**

TABLE II (*continued*)

Particulars of minor schemes

Serial number	*Name of scheme*	*Name of sub-basin*	*Capacity of tanks (M.C ft.)*	*Capacity of diversion schemes (cusecs)*	*C.C.A. or Ayacut (acres)*	*Area proposed to be irrigated (acres)*
1	2	3	4	5	6	7
	Nanded district				*C.C.A.*	
1.	Kedarnath tank	G.7. Penganga	291	—	5,221	3,550
2.	Kiari tank	G.1. Upper Godavari	77	—	2,184	1,625
	Total				**7,405**	**5,175**
	Nasik district					
1.	New Bhandara at Mirgaon	G.1. Upper Godavari	—	6	784	400
2.	Khadak Ozar tank	,,	234	45	4,900	4,000
	Total				**5,684**	**4,400**
	Osmanabad district					
1.	Deonagarwadi tank	G.4. Manjra	67	—	2,000	1,200
	Parbhani district					
1.	Kalamnuri tank	G.3. Purna	170	—	5,220	1,750
2.	Zhari tank	G.1. Upper Godavari	69	—	2,500	1,200
3.	Devgaon tank	G.3. Purna	54	—	2,150	1,300
4.	Pimparkhed tank	,,	54	—	2,000	1,200
	Total				**11,870**	**5,450**
	Wardha district					
1.	Ashi tank	G.8. Wardha	62	—	1,255	900
	Yeotmal district					
1.	Ambona tank	G.7. Penganga	28	10	860	495
2.	Drug tank	G.8. Wardha	127	—	2,532	1,673
3.	Bhandara at Runi	,,	—	4	600	350
4.	Bhandara at Nandepana	,,	—	6	635	450
	Total				**4,627**	**2,968**
	Grand Total for Maharashtra				**89,553**	**49,075**

MYSORE

Nil

TABLE II (*continued*)

Particulars of minor schemes

Serial number	*Name of scheme*	*Name of sub-basin*	*Capacity of tanks (M.C ft.)*	*Capacity of diversion schemes (cusecs)*	*C.C.A. or Ayacut (acres)*	*Area proposed to be irrigated (acres)*
1	2	3	4	5	6	7
	ORISSA				*Ayacut*	
	Koraput district					
1.	Malinga M.I.P. (Lamptaput Block)	G. 12 Sabari	—	20	800	960
2.	Kinchar gedda —do—	„	—	20	800	960
3.	Burufiput —do—	„	—	12	550	660
4.	Tiakonta —do—	„	—	10	500	600
5.	Putra Nallo 'Ummiri Block at Jeypore'	„	—	30	1,500	1,800
6.	Sottigedda —do—	„	—	40	2,000	2,400
7.	Rondapalligedda —do—	„	—	20	1,000	1,200
8.	Hordaput Nallo —do—	„	—	30	1,500	1,800
9.	Rajanagudda (Pottangi, Tul)	„	—	10	600	720
10.	Mallavaram, Kalemela, Block	„	—	70	600	720
11.	Kundurli Nallo, Semiliguda Block	„	—	20	800	960
12.	Karandi Nallo, —do—	„	—	20	800	960
13.	Pottangi Nallo at Kottavalasa (Pottangi Taluk)	„	—	10	500	600
14.	Birigedda at Bajapabili (Boipariguda Sarba Sevasanga Block)	„	—	20	1,000	1,200
15.	Kurulu Nadi Project (Boipariguda Sarba Seva Sanga Block)	„	—	20	1,000	1,200
16.	Gariagado M.I.P. (Mathili Block)	„	—	40	2,000	2,400
17.	Platakote (Nowrangapur Block Across Patta Nalla)	G. 11 Indravati	—	20	800	960
18.	Janniguda (Borigumma Block)	„	—	20	800	960
19.	Turi M.I.P. (Papadahandi Block)	„	—	20	1,000	1,200
20.	Chikli, M.I.P. (Tentulikunti Block)	„	—	20	1,000	1,200
21.	Sengapodoro (Borigumma Block)	„	—	30	2,000	2,400
22.	Kusumi Nall (Kotpad Block)	„	—	10	500	600
23.	Khondiguda, L.I. Nowrangapur Block	„	—	15	600	720
24.	Bongolagudda, L.I. Borigumma Block	„	—	40	2,000	2,400
	Total				**24,650**	**29,580**

TABLE III

Particulars of small tanks and diversions

Serial number	*Name of district*	*Name of sub-basin*	*Number of tanks and diversions*	*C.C.A. or Ayacut (acres)*	*Area proposed to be irrigated (acres)*
1	2	3	4	5	6
	ANDHRA PRADESH			*Ayacut*	
1.	Karimnagar	57 % in G.6 Maner; 31 % in G.5 Middle Godavari and 12 % in G.10 Lower Godavari	11	347	347
	Total		**11**	**347**	**347**
	MADHYA PRADESH			*C.C.A.*	
1.	Balaghat	G.9 Pranhita	7	1,165	866
2.	Bastar	72 % in G.11 Indravati; 16 % in G.12 Sabari and 12 % in G.10 Lower Godavari	14	3,143	2,591
3.	Chhindwara	98 % in G.9 Pranhita and 2 % in G.8 Wardha	7	1,385	1,044
4.	Seoni	G.9 Pranhita	3	486	436
	Total		**31**	**6,179**	**4,937**

TABLE III (*continued*)

Particulars of small tanks and diversions

Serial number	*Name of district*	*Name of sub-basin*	*Number of tanks and diversions*	*C.C.A. or Ayacut (acres)*	*Area proposed to be irrigated (acres)*
1	2	3	4	5	6
	MAHARASHTRA			*C.C.A.*	
1.	Akola	87% in G.7 Penganga and 13% in G.8 Wardha	1	242	72
2.	Amravati	100% in G.8 Wardha; less than one percent in G.7 Penganga	6	1,099	815
3.	Aurangabad	61% in G.1 Upper Godavari and 39% in G.3 Purna	1	100	100
4.	Nanded	31% in G.1 Upper Godavari; 30% in G.7 Penganga; 33% in G.4 Manjra; and 6% in G.5 Middle Godavari	23	1,912	1,912
5.	Nasik	97% in G.1 Upper Godavari and 3% in G.2 Pravara	8	1,706	1,460
6.	Osmanabad	99% in G.4 Manjra; and 1% in G.5 Upper Godavari	1	350	210
7.	Parbhani	46% in G.3 Purna; 31% in G.1 Upper Godavari and 23% in G.7 Penganga	1	240	240
8.	Yeotmal	75% in G.7 Penganga and 25% in G.8 Wardha	10	2,116	1,265
	Total		**50**	**7,765**	**6,074**
	MYSORE	Nil			
	ORISSA			*Ayacut*	
1.	Koraput	57% in G.12 Sabari and 43% in G.11 Indravati	31	6,070	8,364

The percentages in column 3 denote of that part of the district which lies in the sub-basin.

TABLE IV

Abstract of minor schemes, small tanks and diversions

State/ District	*Minor schemes as per Table II*			*Small tanks and diversions as per Table III*			*Total*			
	Number of schemes	*C.C.A. or Ayacut*	*Proposed annual irrigation*	*Number*	*C.C.A. or Ayacut*	*Proposed annual irrigation*	*C.C.A. or Ayacut*	*Proposed annual irrigation*	*Duty (acres per M. Cft.)*	*Proposed annual diversion (T.M.C.)*
1	2	3	4	5	6	7	8	9	10	11
		......*acres*....			..............*acres*..............					
ANDHRA PRADESH										
		Ayacut			*Ayacut*		*Ayacut*			
Adilabad	1	3,000	3,000	—	—	—	3,000	3,000	6	0.50
Karimnagar	2	4,300	6,400	11	347	347	4,647	6,747	6	1.12
Khammam	1	1,000	1,000	—	—	—	1,000	1,000	6	0.17
Nizamabad	1	3,900	4,800	—	—	—	3,900	4,800	6	0.80
Warangal	1	2,850	2,850	—	—	—	2,850	2,850	6	0.48
Total	**6**	**15,050**	**18,050**	**11**	**347**	**347**	**15,397**	**18,397**		**3.07**
MADHYA PRADESH										
		C.C.A.			*C.C.A.*		*C.C.A.*			
Balaghat	2	1,220	900	7	1,165	866	2,385	1,766		0.23
Bastar	—	—	—	14	3,143	2,591	3,143	2,591	11*	0.21
Chhindwara	—	—	—	7	1,385	1,044	1,385	1,044	12**	0.09
Seoni	2	1,095	733	3	486	436	1,581	1,169		0.17
Total	**4**	**2,315**	**1,633**	**31**	**6,179**	**4,937**	**8,494**	**6,570**		**0.70**

Note : The duty (acres per M.Cft.) is based on Table V and the assumption that irrigation in Telengana is generally 80 *percent Abi and* 20 *percent Tabi*

* *for minor schemes*

** *for small tanks and diversions*

TABLE IV *(continued)*

Abstract of minor schemes, small tanks and diversions

State/ District	*Minor schemes as per Table II*			*Small tanks and diversions as per Table III*			*Total*		*Duty (acres per M. Cft.)*	*Proposed annual diversion (T.M.C.)*
	Number of schemes	*C.C.A. or Ayacut*	*Proposed annual irrigation*	*Number*	*C.C.A. or Ayacut*	*Proposed annual irrigation*	*C.C.A. or Ayacut*	*Proposed annual irrigation*		
1	2	3	4	5	6	7	8	9	10	11
		......*acres*......			..............*acres*..............					
MAHARASHTRA										
		C.C.A.			*C.C.A.*		*C.C.A.*			
Ahmednagar	1	600	512	—	—	—	600	512	17.5	0.03
Akola	—	—	—	1	242	72	242	72	15	0.04
Amravati	1	1,600	1,035	6	1,099	815	2,699	1,850	15	0.12
Aurangabad	5	18,100	9,400	1	100	100	18,200	9,500	25	0.38
Bhandara	4	20,690	7,815	—	—	—	20,690	7,815	20	0.39
Bhir	3	12,200	7,750	—	—	—	12,200	7,750	25	0.31
Nagpur	2	3,522	2,470	—	—	—	3,522	2,470	20	0.12
Nanded	2	7,405	5,175	23	1,912	1,912	9,317	9,317	25	0.28
Nasik	2	5,684	4,400	8	1,706	1,460	7,390	5,860	17	0.34
Osmanabad	1	2,000	1,200	1	350	210	2,350	1,410	25	0.06
Parbhani	4	11,870	5,450	1	240	240	12,110	5,690	25	0.23
Wardha	1	1,255	900	—	—	—	1,255	900	15	0.06
Yeotmal	4	4,627	2,968	10	2,116	1,265	6,743	4,233	15	0.28
Total	**30**	**89,553**	**49,075**	**50**	**7,765**	**6,074**	**97,318**	**55,149**		**2.64**
MYSORE										
	Nil	—	—	Nil	—	—	—	—	—	—
ORISSA										
		Ayacut			*Ayacut*		*Ayacut*			
Koraput	24	24,650	29,580	31	6,070	8,364	30,720	59,944	12	4.99
Grand Total	**64**	**131,568**	**98,338**	**123**	**20,361**	**19,722**	**151,929**	**140,060**	—	**11.40**

TABLE V

Crop pattern and duty, district-wise

Serial number	*State/District*	*Average annual rainfall (inches)*	*Proposed crop pattern*	*Proposed Duty (acres per M.Cft)*
1	2	3	4	5
	ANDHRA PRADESH			
1.	Adilabad	39.4	*Abi* and *Tabi* (Paddy)	6.67 for *Abi* 3.33 for *Tabi*
			Kharif and *Rabi*	*Kharif* 33.3 *Rabi* 15.15
2.	Karimnagar	38.4	*Abi* and *Tabi*	6.67 for *Abi* 3.33 for *Tabi*
3.	Khammam	41.3	*Abi* and *Tabi*	,,
4.	Nizamabad	39.4	,,	,,
5.	Warangal	41.3	*Abi* and *Tabi*	,,
	MADHYA PRADESH			
1.	Balaghat	63.0	For minor schemes *Kharif* 68% *Rabi* 30% Perennial 2%	11
2.	Bastar	59.1		
3.	Chhindwara	45		
4.	Seoni	55.1	For small tanks and diversions *Kharif* 70% *Rabi* 2%	12

TABLE V (*continued*)

Crop pattern and duty, district-wise

Serial number	*State/District*	*Average annual rainfall (inches)*	*Proposed crop pattern*	*Pro p Duty (acres per M.Cft*
1	2	3	4	5
	MAHARASHTRA			
1.	Ahmednagar	25.6	*Kharif* 50% *Rabi* 50%	17.5
2.	Akola	33.5	*Kharif* 40% *Rabi* 40% Two seasonal 20%	15
3.	Amravati	35.4	*Kharif* 40% *Rabi* 40% Two seasonal 20%	15
4.	Aurangabad	27.6	*Kharif* 50% *Rabi* 50%	25
5.	Bhandara	59.1	Mostly paddy *Kharif*	20
6.	Bhir	27.6	*Kharif* 50% *Rabi* 50%	25
7.	Nagpur	46.3	*Kharif* 40% *Rabi* 60%	20
8.	Nanded	39.4	*Kharif* 50% *Rabi* 50%	25
9.	Nasik	39.4	*Rabi* 100%	17
10.	Osmanabad	33.5	*Kharif* 50% *Rabi* 50%	25
11.	Parbhani	33.5	,, ,,	25
12.	Wardha	43.3	*Kharif* 40% *Rabi* 40% Two seasonal 20%	15
13.	Yeotmal	39.4	,, ,,	15
	MYSORE		Nil	
	ORISSA			
1.	Koraput	59.1	Paddy	12

सत्यमेव जयते